

American Aviation

JANUARY 22,
1951

35c

THE
INDUSTRY'S
FIRST
NEWS
MAGAZINE

British-U. S. Cooperation

(Editor's Note: In the absence of Wayne W. Parrish who is in the Orient on an extended around-the-world trip, the editorials this issue are written by staff members.)

FOR THE first time in thirty-three years, operational squadrons of the U. S. Air Force will be equipped with aircraft manufactured by a friendly foreign power as plans go forward for a trade of equipment with England whereby North American F-86 jet fighters will go to that country in exchange for English Electric Canberra jet light bombers.

Under this program, American crews will be flying an English product in tactical outfits for the first time since 1918 when Yank fighter pilots were flying SE-5 and Spad pursuit ships, and U. S. air crews were mounted in Handley Page and Caproni bombers, thereby making use of the aircraft production of England, France and Italy.

This somewhat revolutionary step on the part of our Air Force for a rapid buildup of air defense derives from the plan to utilize the best available tactical equipment to fill a particular need, and the Air Force considers the Canberra to be the answer in the light bomber field.

The program of trading American-made aircraft for those made by one of our allies, however, does not mean that domestic manufacturers will be excluded from the particular field indicated, since Air Force Under Secretary McCone said, when announcing the Canberra procurement deal, that the Martin XB-51 three-jet light bomber is another definite procurement possibility.

The total requirement in the light bomber category has not been made public, although it is anticipated that between 300 and 500 of the North American F-86 jets will go to English squadrons in trade for an undisclosed number of Canberras now in early production stages at several English factories.

The Air Force has pointed out that while there may appear to be a considerable change of policy in the Canberra procurement plan, actually it is in line with a long-range program whereby the skills of both nations and their productive capacities may be utilized to the utmost in a rapid expansion of the air forces on both sides of the Atlantic. This is substantiated by the licensing rights granted plants in the

(Turn to Page 6)



New C&S Vice President-Traffic

Thomas M. Miller, who has been Chicago and Southern Air Lines' general traffic and sales manager, was elected vice president-traffic of the company by the board of directors at its January meeting. Miller joined C&S in October, 1943, as assistant to the director of economic research and planning. In 1945 he was named economic research director and a year later appointed director of state relations and properties. He became general traffic and sales manager in 1947.

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Important Place in USAF Expansion

REFERENCE COPY
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Shows Major Gain

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a LOOK at the WEEK

Estimate is that domestic and international airlines, plus foreign lines using U. S. equipment, will buy about \$200 million worth of spare parts during 1951.

Controlled Materials Plan, when instituted, will result in government control of more materials than under similar plan in World War II.

Present National Production Authority set-up on aviation doesn't make industry very happy—aircraft section is only one of several under transportation equipment division. Opinion is that it should be at least a full-fledged division.

Despite rumors to the contrary, military has no present plans for calling more airline planes into Pacific airlift. The 66 planes now in service are different from same number used a few months ago—less scheduled, more non-skeds.

Fact that foreign airlines are included in present priorities system on planes and parts is due principally to efforts of Air Transport Association and Aircraft Industries Association, who carried the ball for them in talks with government. Foreign lines had no organized representation.

Prototype legislation, with government financing from start of construction on through to completion, will receive serious consideration at this session of Congress. Several bills have already been introduced. Feeling is that law enacted at last session, providing government help for testing only, doesn't go far enough.

There's been a preliminary investigation by Budget Bureau about moving CAB and CAA out of Washington under a proposed dispersal program. Such a move, however, is considered unlikely.

National Production Authority's restrictions on new construction are not expected to affect airport hangars, shops or administration buildings, although latter will be watched closely to see that non-essentials are eliminated wherever possible.

Senate Interstate and Foreign Commerce Committee will ask Air Coordinating Committee to resolve high policy questions before it decides whether separation of international air mail pay and subsidy is feasible and in national interest.

UAL, Braniff Ordering Convairs

United Air Lines and Braniff Airways are expected to order Convair 240-A's, raising the Consolidated Vultee Aircraft Corp. backlog for the new type to 75 planes, according to reliable industry sources. Indications are that UAL will take about 40 planes; size of Braniff order is not known.

The 240-A has gross weight of 43,575 lbs., 1,785 lbs. higher than the 240, carries 400 gals. more fuel, and is powered by Pratt & Whitney R-2800 CB-16 engines, providing greater payload potential.

Higher Plane Procurement Budgeted

President Truman's 1952 budget, asking \$60 billion for defense, contained no detailed breakdown for the Defense Department "because of the extensive planning involved." However, with fiscal 1952 scheduled to be the peak year for ordering military planes under present expansion programs, an increase in funds for this purpose over those voted for 1951 is a certainty.

Not including a \$10 billion supplemental which will still be submitted for 1951, the total defense funds voted in that year were \$42 billion, of which \$10.3 billion were for plane procurement. If the same ratio holds true, the new plane procurement requests would be in the neighborhood of \$15 billion.

Other aviation figures in the 1952 budget were:

Civil Aeronautics Administration: \$205,200,000 recommended to be spent or obligated, a \$26,273,502 decrease from 1951. Of this amount, it is estimated that CAA will spend \$195,609,736 in 1952, with remainder obligated. Principal items are \$53,440,000 for federal aid airport program, \$36,400,000 for establishment of air navigation facilities.

Civil Aeronautics Board: \$3,900,000 recommended, a \$400,000 increase over 1951. Largest increase, totaling \$211,823, is in the field of economic regulation.

Post Office Department: \$74,065,000 recommended for domestic air mail transportation, a \$1,351,301 increase over estimated 1951 obligations. For foreign air mail, \$72,381,000, a \$6,172,000 increase. Post Office estimates that its revenue from domestic air mail will rise 14.5% in 1952 to \$102,988,000. Foreign air mail revenue increase is estimated at \$355,000.

National Advisory Committee for Aeronautics: \$80,010,000 recommended, an increase of \$5,932,000.

Atomic Energy Commission: \$1,210,006,500 recommended, a decrease of \$1,120,247,949 from the \$2,330,254,449 enacted or proposed for later submission in 1951.

CAB's Program for 1951

A seven-point program upon which the Civil Aeronautics Board will concentrate most of its activity during 1951 has been outlined by CAB Chairman D. W. Rentzel. In his first major policy speech, before the Aviation Writers Association in Washington, Rentzel listed the seven points as follows:

Mergers: Evaluation of domestic route structure looking toward elimination of uneconomic competition and the bringing about of desirable mergers.

Self-sufficiency: Giving positive encouragement and assistance to attainment of self-sufficiency of domestic

trunk carriers through general improvement of route and fare structure and careful review of necessity for submarginal trunkline service, or its performance, where desirable, by local service carriers.

Local airlines: CAB will make a more complete delineation of purposes, functions and costs of local airline operations, with local carriers remaining local carriers under basic CAB policy, and possibly the issuance of a different type of certificate under which they will operate. The "ultimate goal of these . . . carriers attaining . . . self-sufficiency will be a very important factor in reaching a sound judgment in each certificate renewal case. Furthermore, the Board has clearly advised local carriers and communities . . . that unless local service is used no real justification will exist for its continuance." CAB is "optimistic" about the final result.

Irregular carriers: Further development of a definite and final CAB policy on services provided by large irregulars.

Territorial service: Firm and definite CAB policy will be developed on provision of adequate air service to and within U. S. territories and trust territories.

Subsidy separation: Intensified efforts to develop more specific policy and program for early separation of subsidy and mail pay. CAB's study will complement but won't duplicate study being made by Senate Interstate and Foreign Commerce Committee. Fact that CAB wants to find out what air mail costs the government in terms of service pay and subsidy pay doesn't mean subsidy will no longer be paid, he said, adding that "what the study will show is merely the amount paid out in each category."

Safety: Completion of overhaul of safety regulations, improvement of safety regulation, and furthering of new safety devices begun in 1950 in cooperation with CAA and Commerce Dept.

Other important points made by Rentzel included:

Airlines and war: CAB and military are in "complete agreement" that airlines, instead of being reduced under defense and war mobilization plans, "in all probability must be expanded . . . The importance to our production arsenal of a high-speed transportation system within the U. S. that is second to no other medium of transportation is well recognized and this system must be continued and increased to adequately serve war needs."

Airline Priorities: There are no immediate plans for passenger or cargo priorities barring sudden development of a major war emergency. Whether it will be necessary for the Secretary of Commerce to exercise his authority to commandeer civil aircraft depends largely upon "the sensible planning and demonstrated cooperation of the air carriers."

MANUFACTURERS

Industry Committee: Meeting between Air Force and aircraft industry representatives at the Pentagon on Jan. 17 will result in formation of an industry committee to consult with AF Under Secretary **John A. McCone** on important policy decisions affecting the mobilization program. McCone suggested the committee be named after top industry officials had criticized the AF's making important decisions, such as bringing the auto industry into the program, without asking the opinions of the aircraft industry. **Adm. DeWitt C. Ramsey**, president of Aircraft Industries Association, will name the committee.

Turbo-Prop C-124: Douglas Aircraft Co. has received a go-ahead from the Air Force to build a turbo-prop version of the C-124 heavy transport. The plane, designated YC-124B, will be powered by four Pratt & Whitney YT-34-P1 5,500-hp. engines driving three-bladed Curtiss propellers. Equipment will include wing-tip heating units for thermal de-icing.

Navy Orders FJ-2: The FJ-2, modified version of North American Aviation's F-86D, has been ordered by the Navy. The FJ-2 will be a 14,000-lb. plane similar to Air Force version except for modifications for carrier operation. It may be the first U. S. swept-wing carrier-based jet fighter.

Priorities on Tools: National Production Authority has authorized priorities for purchase of jigs, dies, tools and fixtures and other production accessories needed by defense contractors.

Helicopter Assemblies: Contract for "several millions" from Piasecki Helicopter Corp. for production of transmission assemblies for Navy HUP-1 helicopter has been received by Ford Instrument Co., division of The Sperry Corp. Order will be handled at Ford's Long Island plant.

Bendix Buys Plant: Ford Motor Co.'s Hamilton, O., plant has been purchased by Bendix Aviation Corp. for production of aircraft parts and accessories. It will operate as a new Bendix division, employing about 2,000 workers.

New Plant: A new facility costing about \$1,500,000 is planned by Standard-Thomson Corp. on land near Dayton, O., Municipal Airport. Negotiations for the site are underway.

People: **Harry Woodhead**, manager of Douglas Aircraft Co.'s pressed metals division and former president of Consolidated Vultee Aircraft Corp., has been named general manager of the new Douglas Tulsa division, where the company will build Boeing B-47 jet bombers under a mobilization license . . . Douglas' three California plant managers have been promoted to division general managers in a new set-up under which each plant becomes an independent operating division. The general managers are **Eric Springer**, El Segundo; **Fred Herman**, Long Beach; **Leo Carter**, Santa Monica . . . **Harvey Gaylord**, treasurer of Bell Aircraft Corp., has been elected vice president in charge of all helicopter operations. Because of expanded activity in the field, Bell has consolidated helicopter engineering, administration, sales and service into one division . . . **Fred J. Baum**, project engineer in charge of Northrop Aircraft's C-125 program, has been named as the company's Dayton representative, succeeding **Rudolph Fink**, who has returned to active duty with Air Force . . . **Robert MacMillan**, who has been with Pioneer Parachute Co. nine years, has been elected a vice president . . . **Bert J. McNamara** has been named by Pratt & Whitney Aircraft Division as its liaison official with its licensees, Chrysler Corp. and Ford Motor Co. He was former president of a California construction firm . . . **R. L. Burla**, former assistant to the president of North American Aviation, has been named executive vice president of Rhodes Lewis Co., aircraft armament manufacturer, and **James H. Lassiter**, former works manager of Menasco Manufacturing Co., has been named vice president in charge of manufacturing . . . **Luther "Luke" Harris** has been appointed to the newly-created position of general production manager of Pacific Airmotive Corp. . . . **Gen. Jacob Devers**, former commanding general of Army Field Forces, now retired, has been named special assistant to **R. S. Boutelle**, president of Fairchild Engine & Airplane Corp. He will have offices in Washington.

PLANES & EQUIPMENT

Detachable Fuselages: Two new versions of detachable fuselage aircraft are being worked on by Fairchild Aircraft Division under experimental contract with Air Force. The planes, designated XC-128, will be modified C-119 Packets with truncated fuselages. Quadricycle landing gear, which caused problems in the XC-120,

(Continued opposite page 54)



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News In Pictures



16 Bottles—This Fairchild C-119 Packet, the first equipped with Aerojet JATO units, broke ground at approximately 460 feet when the 16-bottle installation was discharged. Note the JATO bottles mounted externally of the fuselage.



First Flight—Allison's Convair Turbo-Liner is shown here as it took to the air for the first time on December 29. After initial testing by Consolidated Vultee Aircraft Corp., Allison pilots will take over testing which will be carried on at Edwards Air Force Base (Muroc) for about three months. The Turbo-Liner is powered by two Allison 501 turboprop engines rated at 2,750 horsepower each.



F-84E Line—Production-line view of Republic's F-84E at the company's Farmingdale, L. I., plant. Air Force has ordered large-scale production of the plane, both for its own use as a primary ground-support unit for the Tactical Air Command and for shipment abroad under the Mutual Defense Assistance Program.

American Aviation

THE AIR INDUSTRY'S
FIRST NEWS MAGAZINE

Vol. 14 No. 27



Jan. 22, 1951

1025 Vermont Ave., N.W.
Telephone—STerling 5400

Washington 5, D. C.
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American Aviation is published every Monday by American Aviation Publications, Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Canada, Mexico, Central and South American countries—\$5.00 for 1 year; \$8.00 for 2 years; \$10.00 for 3 years. All other countries—\$7.00 for 1 year; \$12.00 for 2 years. Entered as Second-Class matter in Washington, D. C., and Harrisburg, Pa.

Publishing Corporation: American Aviation Publications, Inc., Wayne W. Parrish, president; Albert H. Stackpole, Eric Bramley, vice presidents; E. J. Stackpole, Jr., secretary-treasurer; John H. Poole, assistant secretary-treasurer.

West Coast Office: Park Central Building, 412 West Sixth St., Los Angeles 14, Calif. Trinity 7997. Fred S. Hunter, manager.

Foreign Advertising Representative: United Kingdom—Pearl, Cooper Ltd., 2-3 Norfolk St., Strand, London, W. C. 2. Tel. Temple Bar 8111/2.

American Aviation incorporates Airports and Air Carriers, Airports, Aviation Equipment, The American Pilot, Aviation Sales and Service, U. S. Aviation and American Airports. All rights to these names are reserved.

Other Publications

American Aviation Daily (including International Aviation): Published daily except Saturdays, Sundays and holidays. Subscriptions: \$16 one month; \$180 one year. Daniel S. Wentz II, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy, \$5.00. Marion E. Grambow, managing editor.

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United States for the production of advanced type jet engines, a program already well under way here.

Many will recall the days when our own country was largely dependent upon its allies for fighting aircraft. In these columns a decade ago (February, 1941), it was pointed out that when this country entered the war in 1917, the United States ranked 14th among the nations of the world in terms of aviation, and that the total number of planes delivered to the U. S. Army between 1908 and 1916 was 224, not one of which was a type fitted for combat at the front.

Older combat pilots such as Capt. Eddie Rick-enbacker will remember that even though America manufactured 11,760 airplanes during the nineteen months of our participation in the First World War, only a few more than 400 were utilized at the front before the Armistice and these were all American-built British DH-4's. By July of 1918, England had a production rate of 41,000 planes a year with France turning them out at the rate of 31,000 a year.

This use by our airmen of allied-made types also recalls the early days of the Second World War, when American pilots were flying British fighters while our aircraft industry turned out bombers in ever-increasing numbers for our own and the allied groups.

Another element of interest in the planned purchase of the British Canberra light bomber is that it continues the interchange of airmen and equipment between the two great nations of the Western world, by which Royal Air Force pilots of the Commonwealth of Nations have flown with tactical elements of the Air Force, just as our own pilots of the Navy and Marine aviation have traded places with Air Force pilots for greater familiarization with different tactics and techniques.

Whether there will be additional trades or purchases of aircraft between the United States and England, or any other of the allied nations, is not apparent at this time. The fact that the British with their earlier development of the jet engine can assist us in our equipment of light bomber squadrons for which no comparable American type is currently available is an augury of continuing cooperation between the air groups of the two countries. And it is encouraging to observe that this policy will not preclude procurement of American equipment in the required category.

—A. H. S.

Speed and Jet Transport

INTERESTING as was the high-speed performance of the Canadian-built Avro Jetliner in its recent triangular flight Toronto-Chicago-New York and back to Toronto, it is well to remember that not long ago a Douglas DC-6 flew the Chicago-New York leg in only nine minutes' longer flight time.

This is not to be critical of an excellent demonstration of high-altitude speed flight by the Canadian jet, which set not only a new speed record but a new United States altitude record for transports as it reached 36,000 feet between Chicago and New York and later flew home to Toronto to set a new time for that flight of one hour and nine minutes.

In all fairness it should be pointed out that the DC-6 time was aided by tail winds of considerably higher velocity than those enjoyed by the Jetliner.

However, until it can be demonstrated that a greater margin of speed can be developed in such comparatively short life, considerable development work must be accomplished. Possible use of the Jetliner and similar aircraft in military applications might provide the service experience which will be the real proving ground for turbine transports.

—A. H. S.

Airport Check-List

HOW WELL prepared is your airport to play its part in the civil air defense set-up now being devised?

As important as it is for every airport that can possibly do so to make itself eligible for designation as a Control Airport (telephone, suitable records facilities, radios, etc.), there is more to preparedness.

The airport must be ready to perform its essential functions without being hampered or hamstrung by sabotage or by severance of gas, water or power lines. Here are some items to put on your civil air defense check-list:

- **POWER.** A stand-by motor and generator that is independent of the airport's regular power supply. It need not be expensive, but it should be capable of providing a certain amount of electric power for at least a few hours.

- **LIGHTING.** Even with an auxiliary power source, it is well to have a stock of lanterns, lamps and candles stored in conveniently accessible locations plus a supply of kerosene.

- **HEAT.** Not a critical item in many parts of the country a good part of the year, but it's still a good precaution for airports with central heating to have an auxiliary heating source available, even if it's nothing more than a pot-bellied iron or plain sheet-iron stove or stoves and an available supply of wood or coal.

- **WATER.** This isn't easy, but where possible a shallow well or some other auxiliary source of supply to meet at least minimum water needs should be arranged.

- **COMMUNICATIONS.** Aside from ground-air radio, it might be well to have on hand one or more blinker type light guns, either home-made or "store-bought," and to have personnel available to operate same.

- **SECURITY.** Critical facilities around the airport should have adequate guard or watchman protection. A volunteer security organization should be set up if at all practicable. Airport personnel and airmen must be given suitable identification.

- **MISCELLANEOUS.** Shovels, picks, axes, sand buckets, first-aid supplies and miscellaneous other items that might be useful in an emergency should be acquired and placed in strategic spots.

Airports paying close attention to this check-list will be in a position to function effectively should disaster strike. Those ignoring these precautions will be severely handicapped if not rendered completely inoperative in a real emergency situation.

—K. S.

BOEDY'S ALBUM



Raymond C. "Ray" Dahl
Wright Aeronautical
Paterson, New Jersey
May 23, 1939



Gar Wood (QB)
Speed Boats, etc.
at Paterson, N. J.
May 24, 1939



Guy Vaughan, Charles Lindbergh, Myron Gordon
Curtiss-Wright (U. S. Air Corps Res.) Wright Aero
at Wright Aeronautical Corporation Plant
Paterson, New Jersey, May 25, 1939



Herman L. Stieber
Wright Aero. Corp.
Paterson, N. J.
May 26, 1939



Ray W. Leedom
The BG Corp.
New York City
May 27, 1939



C. L. "Clare" Egtvedt
Boeing Airplane Co.
at Paterson, N. J.
May 29, 1939



W. G. "Beans" Corliss
United States Navy
at Wright-Paterson, N. J.
May 29, 1939



A. T. "Tut" Elison
United States Navy
at Wright-Paterson
May 29, 1939



F. Bill Williams
United States Navy
at Wright-Paterson
May 29, 1939



Murray Berkow
Burnelli Aircraft Ltd.
Keyport, N. J.
May 29, 1939



Bo Sweeney (QB)
Cox & Stevens Aircraft
at Paterson, N. J.
June 1, 1939



Les Hull (QB)
Standard Oil of N. Y.
at Newark, N. J.
June 1, 1939



E. H. "Pick" Pickering
American Airlines, Inc.
at Newark, New Jersey
June 1, 1939



Thelma Powers
American Airlines
Newark—Buffalo
June 1, 1939



D. L. "Danny" Boone
American Airlines
Newark—Buffalo
June 1, 1939

BOEDY'S ALBUM



Ward C. Gilbert
United States Navy
at Buffalo, N. Y.
June 2, 1939



Raymond J. McMahon
United States Navy
at Buffalo, N. Y.
June 2, 1939



Constance Eaton
(Mrs. Bruce G.)
Buffalo, N. Y.
June 2, 1939



Emily Anne Wade
American Airlines
Buffalo—Newark
June 2, 1939



E. M. "Kit" Carson (QB)
American Airlines, Inc.
Buffalo—Newark
June 2, 1939



Francisco Sarabia
Mexican Aviation
at Paterson, N. J.
June 3, 1939



Francisco Sarabia
Mexican Aviation
at Paterson, N. J.
June 3, 1939



Frank E. Caldwell
Civil Aeronautics Authority
at Paterson, N. J.
June 5, 1939



G. C. "Jack" Miller (QB)
Civil Aeronautics Authority
at Paterson, N. J.
June 5, 1939



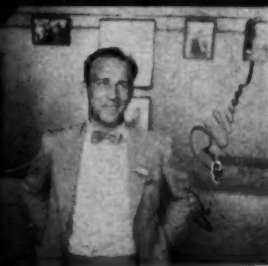
D. L. "Gloom" Mills
United States Navy
at Paterson, N. J.
June 6, 1939



Robert H. McKown
United States Navy
at Paterson, N. J.
June 6, 1939



John O. Rush
United States Navy
at Paterson, N. J.
June 6, 1939



Raymond J. "Sol" Pflum
United States Navy
at Paterson, N. J.
June 6, 1939



Earle W. Estelle (QB)
N. J. National Guard
Newark, New Jersey
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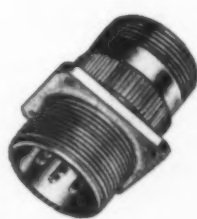
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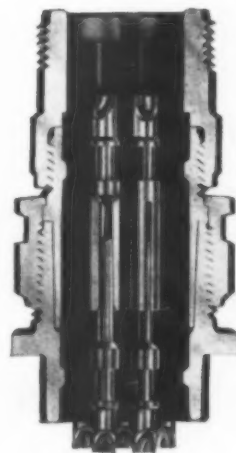
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Bicycle helps a bomber trim its weight

SHAVING pounds off the Boeing B-47 bicycle-type landing gear helped the bomber reach its trim fighting weight. The bicycle gear uses the new design B. F. Goodrich wheel and brake—lightest for its capacity yet developed.

The simple design of the Expander Tube brake itself means that the brake can be made lighter for a given amount of kinetic energy than any other brake. And still more pounds have been trimmed off by new weight-saving features.

The new B. F. Goodrich expander tube has a narrow cavity that operates with greater pressure and less fluid dis-

placement. The new spider-type frame is both lighter and stronger. A new kind of brake block permits the use of *thinner* blocks—with longer wear and increased economy. A new torque bar design feature also saves weight.

The wheels are light, strong magnesium castings. Tires are B. F. Goodrich extra high pressure, built to take 240 psi inflation.

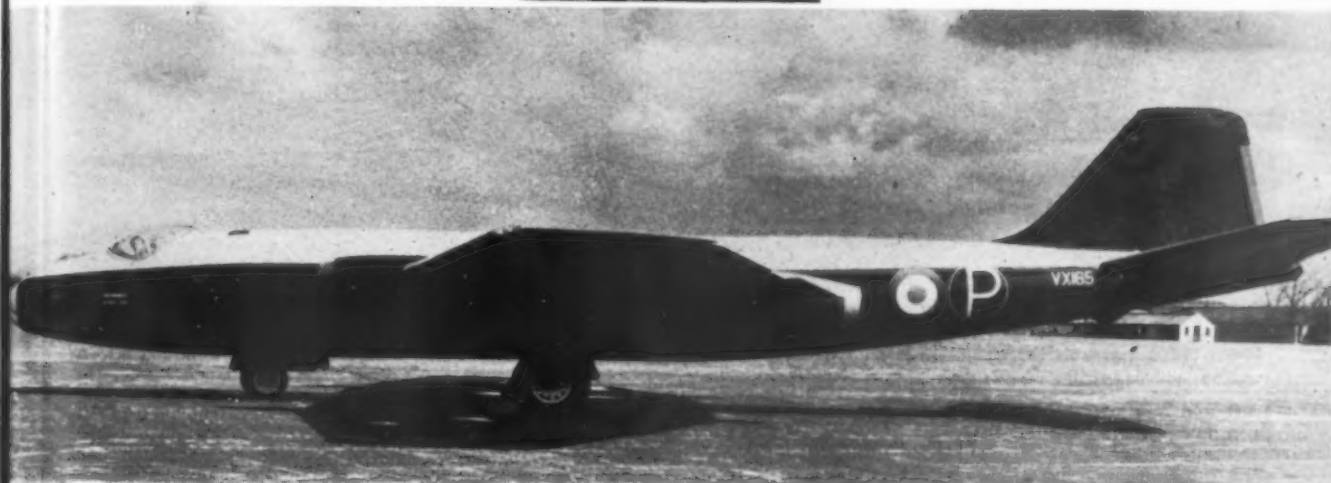
Besides its light weight, the B. F. Goodrich assembly also offers lower maintenance cost—through less in-shop time, fewer replacements and longer life. Pilots like the operational "feel",

too. The brakes cannot lock or grab. They respond smoothly over the whole pressure range. They take heavy overloads better in emergencies.

Today's trend is to B. F. Goodrich assemblies. They have special advantages for airliners and personal planes as well as military aircraft. Get full information from BFG engineers by writing to *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

B.F. Goodrich
FIRST IN RUBBER

AMERICAN AVIATION



EXCHANGE DEAL is now under discussion which would provide for the U. S. accepting English Electric Canberra bombers (above) in exchange for North American F-86 fighters.

Allied Aircraft, Engines Aid AF Expansion

... emergency tempers 'Buy American' policy

By WILLIAM D. PERREAULT

AS MUSHROOMING production requirements showed signs of taxing active domestic aircraft and engine plant facilities and personnel, the "Buy American" act appeared last week to be on its way out for the duration. Thus, six months of mobilization effort appeared to be accomplishing what years of sales effort had failed to do, and both British and Canadian aircraft and engines will probably be assimilated into U. S. military service.

The "Buy American" act was originally passed by Congress in 1933 to insure maximum employment domestically by requiring materials and products used in government contracts to be of U. S. origin, except in a national emergency. The President's emergency powers and the country's defense needs make it evident that the limitations placed on foreign procurement will be waived.

Most prominent deal, yet to be firmed up, is a tentative program under which the British will exchange a number of English Electric

Canberra bombers for North American F-86 jet fighters. The Canberra is a twin-engined light bomber which promises to be standard equipment in all branches of the Royal Air Force. Powered by two Rolls-Royce Avon engines, the Canberra has a top speed just short of 600 mph (see accompanying story).

More Purchases Likely

While the possibility of exchange of planes was first announced in London, John McCone, Under Secretary of the Air Force, had previously stated that the USAF will evaluate the turbine-powered light bomber (AMERICAN AVIATION, Dec. 11) alongside the Martin XB-51. McCone in-

dicated that U. S. purchases of the production Canberra are quite likely. This may well be in addition to any specific exchange program.

Actually, there are only a few Canberra bombers now flying but three of Britain's top production facilities have been singled out for this work. In addition to The English Electric Co. plant, Short Brothers & Harland in Northern Ireland and A. V. Roe Co. Limited have license agreements. The Australian government plant at Fishermen's Bend is also switching to Canberra production. The latter program is over a year old but no production information is available.

Other British and Canadian air-

PRODUCTION of the North American F-86 is in full swing at the Los Angeles, Calif., plant and also in Canada where Canadair Limited is producing substantially over 100 of the Sabre fighters under license.





HIGH SPEED (probably 500 mph for a military version) and high cruising altitude of the C-102 show promise for U. S. military training as a navigation or bomber trainer although formal proposal has not yet been made.

craft and engines which have gained prominence in the United States as a direct or indirect result of the current international situation are:

- The A. V. Roe CF-100, all-weather fighter;
- de Havilland Beaver, all-metal liaison plane;
- Armstrong Siddeley Sapphire, a turbojet engine;
- de Havilland Dove and Devon, 10-11 passenger transports;
- Bristol Olympus, a still-secret turbojet engine; and,
- A. V. Roe C-102, the Canadian turbojet transport.

D-H Beaver

The USAF has just taken delivery on a de Havilland Beaver, the first of six planes on order. Four of these will go to the Army for liaison operation and two to the Air Force. The Beaver has been undergoing evaluation tests at Wright-Patterson AFB in competition with the Ryan Navion, Helioplane, Cessna, Aero Commander, etc., and is understood to have made a good showing.

Designated the YL-20 by the USAF, the first Beaver was delivered with seaplane floats, wheels and skis com-

pletely winterized for Arctic operation. A long-range belly fuel tank was fitted to increase its range in still air to 910 miles. It has provisions for two standard-type litters and has a combination camera-hole cargo-drop hatch.

The Beaver has a normal gross weight of 4,650 pounds, is powered by a Pratt & Whitney R-985 engine rated at 450 horsepower.

Maximum speed is 160 mph, cruising speed 137 and stalling speed 42 mph indicated. Useful load is 1,702 lbs. If selected as winner of the liaison competition the Beaver would probably get a major production contract.

The Beavers already purchased, like the spare parts and other aviation imports from Canada by the government, have been shipped under provisions of the "Buy American" act waiving restrictions up to a given dollar value.

Sapphire Turbojet

The Armstrong Siddeley Sapphire has been ordered in a small service test quantity. The flight tests with the engine will probably be conducted in a Republic F-84F early this year

(AMERICAN AVIATION, Jan. 1). With its dry thrust rating of 7,200 pounds the Sapphire fills a gap in the U. S. line of turbojet engines. Curtiss-Wright recently completed licensing arrangements (AMERICAN AVIATION, Oct. 30) with Armstrong Siddeley under which this and other engines in the series of A-S turboprops and turbojets will be built in the U. S.

While Curtiss-Wright production under the above licensing arrangement would not come within the intent of the "Buy American" act, indications are that the stepped-up military program was no small factor in the agreement. There have been no official indications as to how long it will take C-W to get into production on the engine. This may be related to the results obtained with the F-84F tests.

Canadian CF-100

The Avro CF-100 has been at Wright-Patterson AFB where USAF pilots put it through limited evaluation tests in November (AMERICAN AVIATION, Nov. 27). The USAF has not formerly evaluated it in competition with its natural U. S. counterparts, the Northrop Scorpion and the Lockheed F-94. The twin-engined CF-100, also known as the Canuck, is powered by two Rolls-Royce Avon engines and is considered a long-range, all-weather fighter by the Canadians who have ordered 20 production planes. Later models may use the Avro Orenda engines.

The Bristol Olympus is one of Britain's still-classified turbojet engines. Under the terms of recent agreements Curtiss-Wright has a license to build the Olympus in this country. No information is available regarding the engine or what plans the USAF or Navy might have for it.

de Havilland Dove

The de Havilland Dove, sister-ship of the military Devon, was at Wright-Patterson AFB for about a week late last year. This 10-11 passenger air-



FIRST YL-20 de Havilland Beaver to be delivered to the USAF was equipped with seaplane floats, wheels and skis. The YL-20 rated high in the recent liaison-plane competition at Wright-Patterson AFB, according to observers. This is the first of six planes already ordered.

craft, in widespread use commercially, is used for small transport purposes with the British military services. There have been no indications of direct USAF interest except that represented by participation in flight demonstrations.

While not a direct military matter, the Dove is also under active consideration by Wiggins Airways, the local-service air carrier in New England area, as a feeder aircraft. de Havilland has had a Dove in New England where it operated over the airline's routes for about a week to show its utility in this operation. Wiggins will need Civil Aeronautics Board backing before committing itself to a new equipment program. The fact that military orders have minimized, if not eliminated, the U. S. manufacturer's interest in the feeder-aircraft market, will play no small part in influencing CAB's attitude.

The Dove is an all-metal, tricycle-geared plane powered by two de Havilland Gipsy engines rated at 345 horsepower for takeoff. Maximum level speed is 210 mph and cruising speed at 60% TO power is 179 mph. Payload is about 2,000 pounds. Leading dimensions are: span 57 feet; length 39 feet, four inches, and height 13 feet.

Avro Jetliner

The C-102 Jetliner has yet to be fitted into the defense picture by the manufacturer, A. V. Roe Canada Ltd. As the first turbojet transport on the North American continent, the Jetliner has many military possibilities which will undoubtedly be offered to the USAF. The conflicting opinions on the value of speed in military transport operations leaves the Jetliner's potential in this field hazy.

Of more apparent importance is the part an economical, 500-mph. transport operating between 30-40,000 feet altitude could serve as a bomber trainer or in training navigators. The C-102 in production would gross about 80,000 pounds, have fuel capacity of 4,400 gallons and its cabin size would lend itself to training multiple crews. Recent indications that the production C-102 will have U. S. engines, in place of the Rolls-Royce Derwents now used, and that more than 100 U. S. companies are supplying parts for it may enhance its value in U. S. military services.

Canadair F-86

Finally there are the Canadair F-86's. Canadair Ltd. has a sizable production order from the Royal Canadian Air Force for their version of the F-86 Sabre. Initial prototype of the Canadair F-86 was flown in August and 100 were placed on order by RCAF. Later this order was substantially increased and production is underway.

There is some feeling that the USAF may request, or may accept

an offer on the part of Canadair, to produce additional F-86's for the U. S. This would fit into the pattern of expanding the production base so that any later all-out production effort would be more effective.

Whatever the outcome on these in-

dividual projects, the pattern appears to be established and the question now is a matter of expediency. Both the U. S. and its allies should benefit from the exchange of production aircraft and the resulting technological cooperation.

Canberra--F-86 Deal Would Fill Gaps for Both Countries

By RICHARD G. WORCESTER

The exchange of USAF North American F-86 aircraft for RAF English Electric Canberra light bombers, now under consideration, would do much to provide the respective countries with air equipment which they lack at present.

The RAF is badly in need of a day interceptor capable of sonic speed and able to hold the front line for the next two years until the Supermarine 535 and Hawker P.1081 are in full production. The USAF, according to John McCone, Under Secretary of the Air Force, could use the Canberras to fill a light bomber requirement that has been more or less dormant until the Korean War. The Canberra could also be used for ground attack or night fighting and coastal reconnaissance.

These two airplanes could be used by either air force as they stand, but their effectiveness would be greatly increased with certain changes. The USAF and the RAF would find it easier to absorb the unfamiliar types into their respective organizations with locally built engines besides a number of minor internal modifications to introduce local equipment.

Cost Comparison

An F-86 costs about \$315,000, fly-away, and Air Materiel Command has given the price of the General Electric J-47 as \$45,000. If the British used the Rolls-Royce Avon jet in place of the J-47 they could buy about 116 airframes for the price of 100 equipped airplanes. If they made their own external tanks this figure would rise from 116 to about 118 for the price of 100.

Cost of the Canberra is difficult to assess from British Supply estimates but a fly-away price might be 140,000 pounds sterling (\$390,000), which agrees closely with an independent estimate of about three pounds sterling for a pound weight as typical for this size of airplane at British prices today. Working backwards from the cost of a J-47 the cost of an Avon jet is probably about 16,000 pounds sterling and thus a Canberra production

airframe would cost about 108,000 pounds (\$300,000).

This means that if 100 completed F-86's are given to the RAF, the USAF would get 80 Canberras for the same price. If the exchange deal was only for airframes, 100 F-86's would be traded for 90 Canberras. The USAF naturally stands to gain by buying Canberra airframes as the cost of 100 completed bombers is equal to about 130 airframes.

Engine Alternatives

In accordance with British practice, the Canberra was designed for at least four different jet engines, of which three are under construction in the U. S. The airplane can take Rolls-Royce Nene, Tay or Avon jets or the Armstrong Siddeley Sapphire, and physically the airframe can probably take two Bristol Olympus jets.

The Nene version can be neglected for lack of power. The Tay engine with thrust ratings nearly the same as the standard Canberra with Avons would have a speed of about 565 mph. With two Sapphires the speed would be about 595 mph. and with the Olympus jets the airframe might be overpowered unless there is some sweep on the wings.

So a U. S. version could use two Wright YJ-65 Sapphires, or two Pratt and Whitney J-48 Tays or two Westinghouse XJ-40s rated at 7,500 lbs. thrust each. If the airframe will stand it, the Canberra would be in the B-47 speed class with two Allison J-35-A-23 jets.

Current models of the F-86E with an all-moving stabilizer have an engine compartment wide enough to take the Avro Orenda jet, or the J-48 and could therefore take a British Tay engine or the Avon or the Sapphire jet. With the Avon or Sapphire the performance would be improved all around but increased fuel consumption would decrease the combat range from about 420 miles to 370 miles with 450 gallons of fuel. The RAF would almost certainly be ready to accept this because the short radar warning in Britain makes it necessary to get the airplane up to 35,000 feet more quickly than the present rate of about 6.5 minutes.



ARMORERS install 18 five inch rockets and two 1,000 pound bombs.

Republic's F-84F Bristles With Firepower

WITH greater range and a lot more payload than its predecessors, the Republic F-84F, swept-wing version of the Thunderjet now serving in Korea, promises great improvement in the Air Force's ground support effort.

Now being readied for large-scale production at Republic's Farmingdale, L. I., plant, the "F" will be able to carry the heaviest armament load ever lifted by a fighter, although military security precludes mentioning its maximum firepower capability.

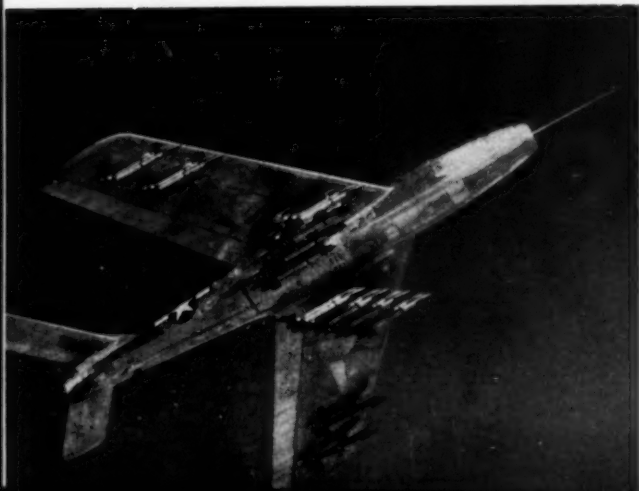
These photos show the prototype model of the "F" in action during its flight test program at Edwards Air Force Base, Muroc, Calif.



THE F-84F in rocket firing tests, carrying 24 five inch HVAR's (high velocity aircraft rockets) on this load (above). This is not the plane's maximum load. The rocket firing tests (right) were conducted at the Air Force's desert test center at Muroc, Calif.



View of the "F" packing a 24 rocket load (left, below). Conventional wing-tip tanks have been abandoned in the F-84F; they are carried beneath the fuselage (right). Each tank has a capacity of 450 gallons.





Gateway of the winds

This is the "throat" of the great wind tunnel in Boeing's aerodynamic laboratories. Through it, forced by giant fans, flow winds of ten times gale force—winds moving at the speed of sound!

The Boeing wind tunnel is already the only one of its size, speed and capacity owned by a single aircraft manufacturer. Now being substantially expanded, its improved aerodynamic research facilities will open a new field of precision testing on advanced-type

aircraft at trans-sonic and super-sonic speeds.

Delicate instruments record every detail as scale models react to varying air velocities in the tunnel throat. Structural strains are accurately calculated. Yaw and flutter are translated into lines on a moving graph. If there is a question about any part of the plane's design, the answer shows up here.

The wind tunnel is but one example of the unique research facilities

available to Boeing's more than 3000 engineers.

Technical genius at the great Seattle plant has the finest of equipment at its finger tips. And neither equipment nor engineering know-how are limited to the field of aeronautics. The company's achievements in experimental research cover the whole broad range of technological development. When an engineering problem is put up to Boeing, you can count on results.

Among Boeing's facilities for research and development are Acoustical, Aerodynamic, Armament, Electrical, Electronic, Flight Test, Hydraulic, Mechanical Equipment,

Metallurgical, Physical Research, Propulsion, and Structural Test Laboratories, as well as the Boeing Wind Tunnel.

BOEING

U. S. Airline Traffic Betters 1949 Record

Domestic Trunk Airlines

Traffic	1949	1950	% Change
Passenger-miles (000)	6,562,580	7,804,112	+18.9%
Mail ton-miles	40,874,188	46,490,815	+13.7%
Express ton-miles	27,329,361	35,299,018	+29.2%
Freight ton-miles	94,189,591	115,310,218	+22.4%
Total Rev. ton-miles	801,508,281	957,079,211	+19.4%
Operating Revenues			
Passenger	\$378,113,445	\$429,226,160	+13.5%
Mail	45,031,010	48,164,484	+7.0%
Express	8,957,243	11,959,307	+33.5%
Freight	18,323,323	21,874,347	+19.4%
All other	9,357,523	12,707,784	+35.8%
Total Operat. Revenues ..	\$459,782,544	\$523,932,082	+14.4%
Operating Expenses	\$435,157,207	\$472,892,838	+8.7%
Net Operating Income	\$ 24,625,337	\$ 51,039,244	+107.3%

Local Service Airlines

Traffic	1949	1950	% Change
Passenger-Miles	133,821,000	184,940,622	+38.2%
Mail ton-miles	427,621	548,210	+28.2%
Express ton-miles	320,143	620,437	+93.8%
Freight ton-miles	435,606	743,579	+70.7%
Total Ton-Miles	14,142,804	19,780,826	+39.9%
Operating Revenues			
Passenger	\$ 7,362,007	\$ 9,894,323	+34.4%
Mail	14,054,998	15,415,665	+9.7%
Express	113,779	227,142	+99.6%
Freight	138,380	216,158	+56.1%
Other	271,465	1,427,507	.....
Total Revenues	\$21,940,629	\$27,180,795	+23.9%
Operating Expenses	\$22,381,715	\$26,704,115	+19.3%
Net Operating Income	\$ -441,086	\$ 476,680	.....

International & Overseas Airlines

Traffic	1949	1950	% Change
Passenger-Miles (000)	2,053,054	2,222,108	+ 8.2%
Mail ton-miles U. S. Letter	18,002,192	19,802,419	+10.0%
Parcel Post Ton-Miles	1,363,577	1,735,666	+27.3%
Foreign Mail Ton-Miles	5,035,859	4,733,395	- 6.0%
Express	49,443,623	42,586,511	-13.9%
Freight	6,714,414	19,034,982	+183.5%
Other	4,879,967	4,977,526	+ 2.0%
Total Revenue Ton-Miles ..	297,169,334	322,680,888	+ 8.6%
Operating Revenues			
Passenger	\$158,479,705	\$155,547,760	-1.85%
U. S. Mail	75,197,073	69,352,634	-7.77%
Foreign Mail	10,990,859	10,176,799	-7.41%
Express	20,023,208	14,692,346	-26.62%
Freight	2,103,622	4,813,920	+128.8%
Other	7,460,071	7,509,272	+0.7%
Total Operating Revenue ..	\$274,154,538	\$262,092,731	-4.40%
Operating Expenses	\$252,863,129	\$246,810,873	-2.39%
Net Operating Income	\$ 21,291,409	\$ 15,281,858	-28.23%

Traffic gains comparable to or greater than those in the record year of 1949 were made in 1950 by the U. S. domestic trunk, local service and international airlines, according to Dr. Lewis Sorrell, director of research for the Air Transport Association.

The accompanying figures for 1950 are based in part on ATA 4th quarter estimates combined with the first nine months traffic and revenue reports of the carriers filed with CAB. Combined figures for the 16 domestic trunks, 12 local service, and 13 international airlines were shown in AMERICAN AVIATION, January 8.

Here are the highlights of the traffic, revenues, expenses and operating income of the three groups.

Domestic Trunks

A \$51,000,000 gain in passenger revenues in 1950 enabled the scheduled domestic trunk airlines to mark up a record operating profit for the year. With operating revenues totaling \$523,932,082 and operating expenses aggregating \$472,892,838, the 16 trunklines showed a net operating income of \$51,039,244, last year, compared with an operating net of \$24,625,337 in 1949.

Total operating expenses increased 8.7%, while total revenues were growing 14.4%. The increase by 107.3% in total net operating income is largely explained by this difference in the above two rates of growth.

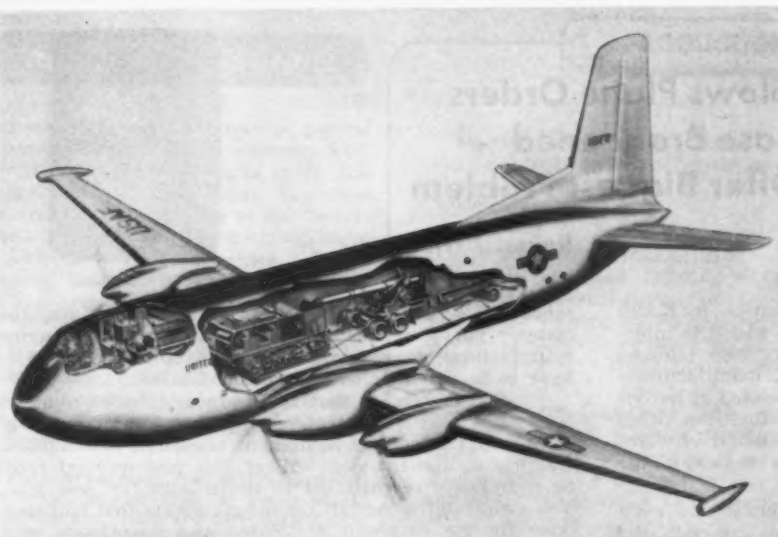
Increases in all categories of traffic were registered by the trunklines in 1950 with a gain of 18.9% in passenger miles over 1949, 13.7% in mail ton-miles, 22.4% in freight ton-miles, and 29.2% in express ton-miles. Total revenue ton-miles were 19.4% over 1949 record totals.

International

Both traffic and revenues of the U. S. Flag international airlines showed considerable variance in 1950 as compared with the preceding year. Since revenue ton-miles increased almost twice as fast as total operating revenues, it is evident that some decline in the rates of compensation for various services must have occurred, although passenger miles were up 8.2%, passenger revenues fell off 1.8%.

Special excursion fares, round-trip discounts, common fares and other tariff concessions could in part be responsible not only for the increase in passenger miles but also for the decrease in passenger revenues.

The course of express and freight was very erratic with express ton-miles and revenues down 13.9% and 26.6%, respectively while freight ton-miles increased 183.5% and freight



Turboprop C-124—First flight of the Douglas YC-124B, turbo prop version of the Globemaster II now under construction at Douglas' Long Beach plant, is scheduled for the spring of 1952. The YC-124B will be powered by four Pratt & Whitney YT-34-P-1 turbo-prop engines rated at 5500 horsepower each. Note the bullet shaped wing-tip units. These are heating units for thermal deicing of the wing leading edges.

revenues showed a gain of 128.8%. A possible explanation of this unusual change in cargo service figures could be the divergent statistical practice of some carriers, as regards assignment of cargo to one or the other of the two classes.

Total operating expenses were down 2.3%, but with total operating revenues off 4.4% operating net was reduced by 28.2% from the year before.

Local Service Airlines

The certificated local service airlines earned a net operating profit of \$476,680 last year with 12 carriers reporting as against 16 reporting in 1949 with an aggregate net operating loss of \$259,063. The gain was based on total operating revenues of \$27,180,795 and total operating expenses of \$26,704,115.

Bramley, Henzey Win TWA Aviation Writing Awards

Fifteen writers and photographers, including two editorial staff members of AMERICAN AVIATION, were guests of Trans World Airlines on a press flight to Phoenix and Las Vegas January 11-14, when they were presented with plaques and cash prizes as winners in TWA's 1950 Aviation Writing and Picture Competition.

AMERICAN AVIATION staffers on the trip were: Eric Bramley, executive editor, who won \$100 for the best air transport sales and promotion story, and William V. Henzey, transport editor, who won \$100 for the best business and financial story.

C-97's Using Direct Route On Pacific Evacuation Flights

Taking advantage of favorable tailwinds, Military Air Transport Service Boeing C-97 air evacuation flights are now being routed direct from Tokyo to Honolulu and from Honolulu to Kelly AFB, Texas.

The first flight made over this route took 13 hours, 20 minutes for the first leg and 13 hours for the second. It is proposed that Douglas DC-6 and Lockheed Constellation aircraft would also be able to make a similar route schedule.

Brig. Gen. Wilfred Hall, in giving these figures, said that the number of patients carried on the air lift from the war theater was 14,000 up to Christmas. The greatest number of men moved by air out of Tokyo in one day was 443 and the largest number out of Honolulu was 410. On reaching the U. S., the wounded have been distributed to 74 Army, Navy and USAF hospitals.

PEOPLE IN THE NEWS

Willard Van Horn, who has been serving as a consultant to the Senate Interstate and Foreign Commerce Committee, has returned to East Chicago, Indiana, to practice law.

Leland E. Spencer, vice president of Kelly-Springfield Tire Co., has become director of the National Production Authority's rubber division, replacing **Earl W. Glen**, acting head, who became deputy director for rubber controls.

Richard G. Lawton, president of Lawton Oil Co., Magnolia, Ark., has been

appointed director of the production division of the Petroleum Administration for Defense.

Herbert A. Bergson, former assistant attorney general in charge of the anti-trust division, has been appointed general counsel of the Office of Defense Mobilization. **Fred Searls, Jr.**, president of the Newmont Mining Corp., New York, was named assistant to the director of ODM, specializing in handling materials problems.

Aviation Calendar

Jan. 22-26—American Institute of Electrical Engineers winter general meeting, Hotel Statler, New York, N. Y.

Jan. 29-Feb. 1—Institute of the Aeronautical Sciences 19th annual meeting, Hotel Astor, New York, N. Y.

Feb. 14-16—National Aviation Education Council meeting, Atlantic City, N. J.

Feb. 14-28—Orlando Annual Aviation Fiesta, Municipal Airport, Orlando, Fla.

Feb. 23—Air Transport Command Officer-Stag Reunion, Waldorf Astoria Hotel, New York, N. Y.

Feb. 24—Fourth Annual National Model Plane Exhibit Contest, Higbee Co. Auditorium, Cleveland, Ohio.

March 12-13—Third annual, short course on uses of aerial equipment in agriculture, Purdue University, West Lafayette, Ind.

March 16—Institute of the Aeronautical Sciences sixth annual flight propulsion meeting, Hotel Carter, Cleveland, Ohio.

April 16-18—Society of Automotive Engineers aeronautic meeting and aircraft engineering display, Hotel Statler, New York, N. Y.

April 19-21—Airport Operators Council annual meeting, Hotel Peabody, Memphis, Tenn.

April 23-26—American Association of Airport Executives annual meeting, Minneapolis, Minn.

April 24-26—Air Transport Association annual engineering and maintenance conference, Drake Hotel, Chicago, Ill.

May 12-13—Airlines Medical Directors Association 8th annual meeting, Hotel Shirley Savoy, Denver, Colo.

May 13-14—Airline Medical Examiners Association 4th annual meeting, Hotel Shirley Savoy, Denver, Colo.

May 14-16—Aero Medical Association 22nd annual meeting, Hotel Shirley Savoy, Denver, Colo.

May 23-24—American Society for Quality Control fifth annual convention, Hotel Cleveland, Cleveland, Ohio.

May 24-25—Society of the Plastics Industry annual national meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

International

Feb. 5-6—IATA Medical Committee meeting, Cairo, Egypt.

Feb. 13—ICAO Airworthiness Division meeting, Montreal.

Feb. 20—ICAO Operations Division meeting, Montreal.

March—World Meteorological Organization Congress, Paris.

April 3—ICAO Communications Division meeting, Montreal.

June 15-July 1—1951 Paris International Aircraft Exhibition, Grand Palais and Paris airport, Paris.

- Shifting Goal Slows Plane Orders
- Mobilization Base Broadened
- Components Offer Biggest Problem

By James J. Haggerty, Jr.



A LITTLE while back, when the situation in Korea suddenly took a turn for the worse with the intervention of the Chinese Communists and we were plunged into a mobilization production program, manufacturers in the aircraft and related industries descended in hordes upon military procurement officials to find out what would be expected of them, got some tentative commitments and returned to their plants to await the formal go-ahead signal.

It was expected, by the general public and even by the manufacturers who had been dealing with the military services, that the orders would start flowing out of the Pentagon in great streams almost immediately, since under a mobilization program time is of the essence.

But the orders didn't start flowing. They started dribbling out at a rate not noticeably greater than the pre-mobilization rate. The manufacturers couldn't make any plans; they didn't know what type and how much raw material to order, they didn't know what sort of personnel recruitment programs to initiate, or to what extent additional facilities would be needed. They started grumbling and writing their Congressmen. The Congressmen began thumping the rostrum demanding that something be done. Congressmen, manufacturers and the public ranted in unison against the fumbling stupidity of the military.

Now far be it from us to suggest that the Pentagon is devoid of fumbling. And it would be something less than accurate to state that the military procurement officials have the situation one hundred per cent in hand. There is a good deal of confusion in the Pentagon today.

No Quick Solution

But in fairness to the military it must be pointed out that there are problems connected with getting a mobilization program under way which do not lend themselves to overnight solutions. The general impression seems to be that all it takes to get the production program under way is a typing staff to type contracts and an officer to sign them, but it's not as simple as that. Let's take the Air Force's problem as an example.

Before the mobilization program got under way, the Air Force was building toward a 69-group strength. It had "programmed" the types of planes it would buy, the type of equipment which would go into them, coordinated delivery schedules of component equipment so that a radar set or a propeller would arrive at the airframe manufacturer's plant at just the time it could be installed on the plane, and coordinated delivery schedules of the planes themselves so that they would arrive at new units at a time when these units would have personnel to handle them. At that time the procurement program was fairly orderly.

Then came the mobilization order and Air Force procurement officials woke up one morning to discover that their new goal was 84 groups, not 69. It would seem at first that that would pose no great problem; if you're going to increase your strength by 15 groups you just order 15 groups worth of additional equipment over the original program.

But you can't. Plane deliveries have to be re-

scheduled so that the group strength can be expanded faster. Therefore, all along the line, from the engine manufacturer to the smallest part supplier, deliveries have to be rescheduled and re-coordinated.

And remember that there are a lot more items to be bought than just airplanes—ground handling equipment, communications equipment, weapons, ammunition, training equipment, etc. All of this procurement must be completely rescheduled to tie in with the new goal. You simply throw out all the programming that had been done for the 69-group Air Force and start fresh on a program for 84 groups.

New Start, New Goal

So they started fresh. And before the programming officials even became familiar with the new requirements, the situation had changed again and a new goal announced. (Best information is that the new goal is 95 groups, but the Air Force isn't saying. But it appears possible and even probable that the eventual mobilization strength of the Air Force will go beyond that.)

The 84-group program was scrapped and the planners went to work on the "new goal." And then a new factor entered into the programming. In his State of the Union message the President called for a mobilization production capacity of 50,000 planes a year. This doesn't mean that 50,000 planes will actually be ordered in any year unless we go to war. But we must build the plant capacity to turn out 50,000 planes when we need them. This is done by opening new plants, by getting new manufacturers into defense work, by expanding existing facilities and by adding extra tooling to plants now in operation.

The effect of this on Air Force programming is obvious. Where, say, it had originally been planned to have five contractors build a particular piece of equipment, it will now be necessary to have seven or eight, in order to "broaden the mobilization base." So that piece of equipment must be rescheduled.

Component Scheduling Difficult

Procurement of airframes poses no great problem for the programming officials. There are only so many plane types and so many manufacturers to build them. To date more than 85% of this year's available aircraft money has been allocated. It's in the component parts of the plane and in certain non-flying equipment that the planners run into scheduling difficulty. One major problem right now, for instance, is procurement of ground handling equipment for air bases, since the new program requires opening a number of new bases and you can't schedule delivery of equipment to a new base until you know which base it's going to be and how soon it will be operating.

So the big factor in the delay in getting mobilization production under way is not fumbling stupidity but the element of constant change in top-level planning. The programming people realize the importance of getting started quickly and they're working hard at it. But mobilization is not something that can be accomplished overnight and it is quite probable that production orders will trickle, not flow, for a little while longer at least.

Fred Westermeier, formerly general foreman of machine and assembly tools for North American Aviation at the Los Angeles plant, has been appointed superintendent of tooling at the Columbus, O., plant being opened by North American. **G. Paul McCormick**, formerly general foreman of extrusion forming at Los Angeles, becomes superintendent of sheet metal work at Columbus.

Richard D. Maystead has been named vice president and general manager of Pacific Airmotive Corp.'s manufacturing division. He had been manager of manufacturing and engineering.

Dale Armstrong, formerly vice president—public relations for Trans World Airlines and more recently with Lockheed Aircraft's publicity department, has joined the New York office of Executive Research, Inc., public relations counsel.

Joseph M. Crockett has been appointed public relations manager for the Fairchild Aircraft Division, succeeding **Robert T. Kenney**, resigned.

William L. Batt, Sr., former president of SKF Industries, has been appointed U. S. member of the newly organized North Atlantic Defense Production Board.

Donald B. Harris, formerly executive assistant to the director of research of Collins Radio Co., has become technical assistant to the president of Airborne Instruments Laboratory, Mineola, N. Y.

Richard W. Darrow, director of public relations for The Glenn L. Martin Co., was selected by the Baltimore Junior Association of Commerce as that city's "Most Outstanding Young Man of the Year" for 1950.

James L. Kelly, who resigned a year ago as works manager of Ryan Aeronautical Co., because of ill health, has joined Consolidated Vultee Aircraft Corp. to handle special assignment from **K. F. Leaman**, San Diego division manager. Kelly was wartime manager of the division.

Herb Caldwell, former superintendent of the jet fighter division of Lockheed Aircraft Corp., has been appointed manager of outside manufacturing. Succeeding Caldwell as head of the jet group is **H. D. DuChemin**, former assistant superintendent. **W. H. Wayman**, former vice president of Lockheed Aircraft Service in charge of the MacArthur and Keflavik bases and more recently an LAS executive trainee, has been named assistant manager of outside manufacturing. Other changes are: **M. E. Chase**, promoted from assistant general purchasing agent to manager of purchasing; **J. A. White** named as manager of purchasing service; and **J. S. Card** named as manager of vendor termination and material sales.

DC-6A Completes Tests: Douglas Aircraft Co. has completed the final test flights for certification of the DC-6A Liftmaster, cargo version of the DC-6. The test program was conducted at Palm Springs, Calif.

Magnesium Stockpiling: The magnesium stockpile will be increased by about 112,000,000 pounds during the next two years through the reactivation of three government-owned plants. The plants are located at Painesville, O.; Canaan, Conn.; and Wingdale, N. Y. They were constructed at a cost of \$27,000,000 during World War II and shut down shortly after the end of the war.

T-28's on Downey Line: North American Aviation is now turning out T-28 trainers for the Air Force at its Downey, Calif., plant. The first Downey T-28 was rolled out for flight test on New Year's day. The production line was moved from NAA's Los Angeles plant to Downey to make room for a line of F-86D jet fighters at Los Angeles.

First B-36D Delivered: Consolidated Vultee Aircraft Corp. has delivered the first modernized B-36D to the Air Force. The plane is the first of the B-36B series to be converted to "D's" by the addition of four jet engines in under-wing pods to the normal six piston engines. The modernization program is under way at Convair's San Diego plant.

World Wage Comparison: Lockheed Aircraft Corp. has worked up an interesting comparison of the prevailing wage rates in aircraft plants in different parts of the world. In a year-end employee relations message, Lockheed tells how long aircraft workers in various countries would have to work to earn the money to pay for a selected armload of staple groceries (two pounds of beef steak, a loaf of bread, five pounds of sugar, two quarts of milk, a pound of butter, two dozen eggs, five pounds of flour, three pork chops and five pounds of potatoes). Here's how it stacks up:

Average Lockheed worker	4 hours, 42 minutes
Canadair worker, Montreal, Canada	6 hrs., 2 min., 28% longer
de Havilland worker, Hatfield, England	6 hrs., 58 min., 49% longer
SAAB worker, Stockholm, Sweden	7 hrs., 48 min., 66% longer
Nord worker, Paris, France	18 hrs., 36 min., 260% longer
Fiat worker, Turin, Italy	23 hrs., 36 min., 402% longer
Ilyushin worker, behind the Urals, U.S.S.R.	57 hrs., 29 min., 1123% longer

H-S Jet Air Conditioner: Hamilton Standard Division of United Aircraft Corp. has developed a new and larger version of its air conditioning unit for jet fighters. The first unit was shipped to Lockheed Aircraft Corp. for installation in the F-94C jet fighter.

World War II Labor Responds: Indication that reopening of reserve airframe plants used in the last war is going to contribute to the labor supply in the aircraft industry is found in Douglas Aircraft Co.'s experience in Tulsa, Okla. After the announcement that Douglas would reopen the big reserve plant there to build Boeing B-47's, the company was flooded with applications from former employees in the Tulsa area who worked for Douglas during the war in the Tulsa plant. The volume makes the company hopeful that it will be able to pick up a larger nucleus of Douglas-trained workers than it had originally anticipated.

Lockheed's Defense Plan: Lockheed Aircraft Corp. has completed its plant defense plan. In addition to basic planning for an emergency, steps taken include training of radiological teams and auxiliary firemen, construction of a communications center and increased facilities for emergency lighting and water supplies.

—J. J. H.



A COOL HEAD IN A HOT SHIP

Cooling high-speed fighters or bombers is more than a matter of crew comfort...it's essential for survival. Cooling requirements of combat aircraft are severe. Highly efficient, compact and light-weight refrigeration units are needed to keep cockpit temperatures at desirable levels.

Stratos air cycle cooling units are *engineered* to meet these exacting demands. Extremely compact and very light, they deliver a high rate of flow of cooling air. Production models with air flow capacity ranging from 12 lb/min to 90 lb/min are standard equipment in combat aircraft of the U. S. Navy and the U. S. Air Force. Such high performance aircraft as McDonnell's F2H2 Banshee, Boeing's B-47 Stratojet, North American's AJ-1 Tornado, and the Douglas XA2D Skyshark are equipped with Stratos cooling packages.

Airlines, too, are using Stratos equipment in transport aircraft such as the Constellations of Pan American World Airways, and the Convair Flagships of American Airlines, in which Stratos equipment has proved its efficiency, low maintenance cost, and long period of service between overhauls.



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IATA Proposes Simpler Takeoff Standards

By RICHARD G. WORCESTER

TAKEOFF performance standards have undoubtedly been for some time the most controversial single question in international civil aviation.

In the early stages there was doubt among the various nations, led by the United States, as to whether the recommended practices should be altered from a series of fixed margins which everybody could understand to a set of proposals more loosely but logically expressed (known as the "rationalized" requirements) as presented by a group of other nations led by the United Kingdom.

The need for a change has now been generally recognized and the earlier division of views has given way to a more general perplexity by all nations on how these changes should be implemented. It is comparatively easy to see the need for revision but much more difficult to establish agreement on how much to alter the recommendations.

Tests Under Way

Last year ICAO's Paris Conference left takeoff requirements specified in terms of an arbitrary obstacle clearance and, until some specific margins can be worked out, there can be no decision on the runway length factor. There should be no valid separation of these questions.

Performance tests are now under way by the major U. S. and British carriers to check the ICAO resolutions in practice. These are likely to show that the rules in the tentatively revised flight manuals will be difficult to apply because, when the distance to any arbitrarily selected height is expressed as a basic quantity in takeoff performance, this

U. S. Companies Conducting Performance Tests

Performance tests on current transports are now under way by seven scheduled airlines and one manufacturer to provide ICAO with substantiating data on which to base international airworthiness regulations. Present indications are that the fleet-wide performance tests will not be complete but certain data will be available. Principal airlines represented in the U. S. tests are:

Pan American World Airways	Boeing Stratocruisers
Capital Airlines	Douglas DC-4's
American Airlines	Convair-Liners
United Air Lines	Douglas DC-6's
Eastern Air Lines	Douglas DC-3's
Trans World Airlines	Lockheed Constellations
National Airlines	Lockheed Lodestars
The Glenn L. Martin Co.	Martin 2-0-2's

Each will conduct take-off, climb and landing tests with each aircraft in the fleet to determine how the actual performance of the airplanes compares with proposed ICAO regulations. In addition to this, airlines will use special flight manuals prepared by each of the manufacturers to determine how the regulations would affect the route structure of the airlines. Wherever possible performance tests will be conducted following engine changes to permit near-standard power conditions.

British airlines are conducting parallel tests with aircraft in their fleets.

height will not correspond with any definite aircraft configuration.

Therefore, if the clearance is assumed at 20 feet the configuration will be changing and additional segmental data between the height point and the climb configuration point is necessary so that the takeoff profile can be determined and the obstacle clearance applied. The airlines' findings on these and other questions will be discussed at the forthcoming ICAO meeting in Montreal during April.

There are four conditions which

define the critical performance case for takeoff (assumed as with the critical engine inoperative) as follows:

(a) The accelerate-stop distance required will not exceed the accelerate-stop distance available. (The power-failure point must not be nearer the starting point than is established for compliance with (b) and (c) below).

(b) The takeoff run required will not exceed the takeoff run available.

(c) The takeoff distance required



Pure Rocket D-558-2—First picture of the NACA's Douglas D-558-2 shows a number of minor changes from the earlier model now doing late-phase trials. There is no evidence of an auxiliary jet engine in

this airplane and in place of the flush intakes there is now only a small air vent and scoop. There are large aerodynamic fences on the wings and the view shows clearly the all-moving stabilizer and the position of the flaps, slots and control surfaces.

Design Trends

By Richard G. Worcester



IT IS EASY in times of stress to get the subject of military security out of focus. What is a secret? Theoretically, everything is: the shape of the Pentagon building is a secret of sorts. But, in practice, when Governments have released the spans, thrusts, weights, wing characteristics, and so forth (as they have for, say, the Boeing B-47 and the British Canberra), it requires little skill to come up with the full performance.

Speed in particular is always regarded as a deadly secret, but suppose the external view is classified. Consider a secret fighter like the Grumman XF10F-1. Feed 10,800 lbs. of thrust from its Westinghouse XJ-40 engine and afterburner, and the weight of 30,000 lbs.—the only two published facts—into a typical modern swept-wing airframe and out comes the speed—730 mph. Suppose we know no facts at all, and no designation number. Then assume there will be two buried Curtiss YJ-65 Sapphires with methanol and afterburners and then the speed—1,070 mph. Or two General Electric augmented XJ-63 jets—1,250 mph. And once you know the high speed, then the climb, cruising speed, ceiling, turning radius and everything else falls into place.

The real secrets of aviation seldom get within miles of print—probably because they are too uninteresting for popular treatment. They are the little facts of industry such as the number of reheats in forging a Nimonic turbine bucket. Why they chose 4.5% tungsten in S.816 material and not 3 or 6%. In other words, the know-how is the crucial secret. So the British Air Ministry's Aiden Crawley was approximately correct when he said that the technical press never publishes anything technical of military significance. The Office of Technical Services in a new program of industrial censorship is however, wrong to try and control the "significant integration" of previously scattered groups of information. This is, or should be, one of the primary functions of the more objective elements of the technical press. The OTS itself should copy the methods of the PRO's of industry who do not release information which can be integrated with previously given facts because they know full well that anybody can put two and two together.

We are now living in an age when the company with the largest laboratories must, mathematically, build the best airplanes. This basic premise is finding confirmation in the way two major constructors and many small ones are to help Boeing build B-47's and exactly the same thing is happening in Britain with the Canberra.

There is a feeling that this process may have to be carried a stage further. It is argued that only, say, Douglas, Convair, Lockheed and Boeing should design big air weapons, with North American and Republic the small ones and Grumman supplying the Navy. In Britain, Vickers, de Havilland and Bristol the large types, English Electric and Gloster the small ones and Hawker supplying the Navy. All the rest of both industries would be adaptation centers and production arsenals as being the only way to compete with Russia's tenfold numerical preponderance of aircraft production.

The basic question is this: is the healthy competitive spirit of independent design groups offset by the lack of standardization and steady output? Air superiority means freezing a design and getting a huge production quickly afterwards. Can any but the largest combines all working together turn out complex weapons in the numbers that are required?

The outlook of the individual engineer is also changing with the times. The day of the single-handed inventor has, for all practical purposes, passed. Now there are teams of a hundred analysts, assisted by 2,000-tube Northrop electronic computers, trying to put an edge on that third decimal place. In these circumstances the man who can say they are all wrong and explain a different approach to the problem must, indeed, be a genius.

will not exceed either the takeoff distance available or twice the takeoff run available.

(d) The net takeoff flight path, starting at a point 35 feet above the ground at the end of the takeoff distance required, will provide a vertical clearance of 20 feet plus 0.005 times the distance above all obstacles lying within closely defined distances on both sides of the intended track. The net path may include turns, and the gentleness of the turn is also defined in detail. The position of the landing gear is assumed to be up at the first obstacle and the net flight path gradient is defined as at least 1% and clearing all obstacles by 20 feet vertically.

The method of applying these requirements is also laid out:

- Consider first the weight of the aircraft at takeoff.

- Second, the altitude in the standard Atmosphere must be equal to the elevation of the airfield.

- Third, either the official ambient atmospheric temperature at the time of takeoff or a declared temperature must be made.

- Fourth, either the reference humidity or the official ambient atmospheric humidity or a declared humidity be applied.

- Fifth, the surface gradient considered.

- Sixth, not more than 50% of the reported wind component will be along the takeoff path if opposite to the direction of takeoff and not less than 150% of the reported wind component if it is in the direction of takeoff.

New IATA Proposals

In December IATA issued details of an attempt to simplify the requirements in a new takeoff performance code aimed at obviating some of the difficulties which have been referred to earlier. In their recommended proposals of the operating requirements they suggest that the first two parts (a) and (b) can remain as stated. The third and fourth should be revised to read as follows:

(c) the net takeoff flight path should clear all obstacles.

The proposed method of calculating the net flight path would involve first obtaining the airplane's gross performance then deducting the margins for the deviation of individual aircraft from the average. This applies not only to the flight path but also to the accelerate-stop distance and the takeoff run. Then deduct the performance required for maneuvering. Then deduct the datum performance which is .5% during the climb out and the final path is the net path. This must clear all obstacles.

The data needed in the flight manual should be rationalized into the basic elements of takeoff and accel-

rate-stop. Diagrams showing the distance to the critical engine failure speed (v_1) and the takeoff speed (v_2) and the first, second and third segment climbs would be shown as functions of wind, weight, altitude, and temperature/humidity. Any desired condition could then be reproduced as a takeoff net flight path to include margins and datum performance which could be applied directly to any surveyed profile to determine allowable weight. These data would be usable without reference to any arbitrary height reference point and could therefore be applied to whatever survey specification were evolved by ICAO, a particular national authority or the operator.

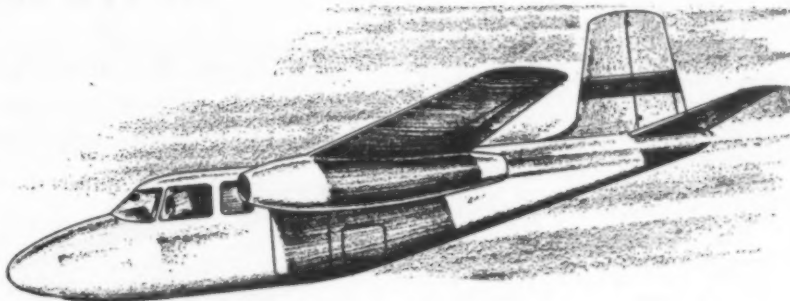
IATA also recommends that the survey specification can be separated entirely from the data in the flight manual. This makes it easy to have a wide range in different surveys without re-wording the requirements in the manual.

Technical Briefs

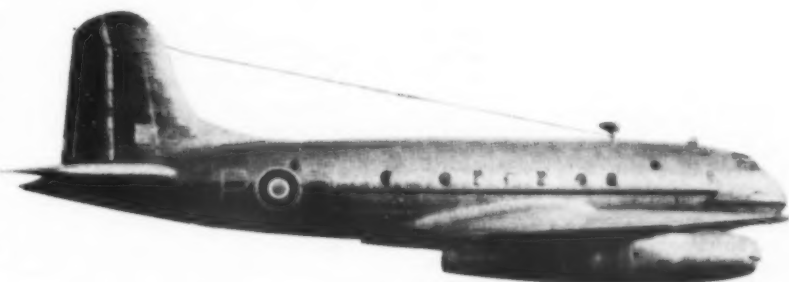
- With two Armstrong Siddeley Sapphire jets, the supersonic swept wing version of the water-based Saunders-Roe SR-A.1 fighter would have a maximum speed of 670 mph. or over 700 mph. with methanol injection. A two-place night fighter version and a sea and land assault airplane, and also a novel anti-submarine role could be considered for this design which is still unique. Of the three boats built in Britain two have sunk and the third is in process of late-phase evaluation.

- A method has been developed of molecularly bonding carbon inserts to the steel nozzles for the throats of rocket engines to resist erosion at full power. Similar methods have been used with certain ceramics but this is the first instance of a carbon bonding which has been developed by the Armour Research foundation.

New Jet Applications



Jet Trainer Study—The jet version of the Aero Commander is a possible development envisaged by the company and, powered by two Armstrong Siddeley Adder engines of 1,050 lbs. static thrust, would reproduce many typical handling characteristics of modern jets. The piston-engined Commander is in production, and a turbine-propeller model with two Boeing 500-series engines is being investigated.



Sapphire-Hasting Transport—Two Armstrong Siddeley Sapphires—which will be built by Curtiss-Wright under the Air Force designation YJ-65 for the Republic F-84F—are being currently tested in England in the outboard nacelles of an experimental Handly Page Hastings military transport. The airplane is reported to be reaching its placard speed of about 375 mph at 24,000 feet in level flight with all four engines. The Sapphire is rated at 7,200 lbs. static thrust.



French B-26 Jet Test Bed—First pictures of a Martin B-26 used by the French S. N. E. C. M. A. company (one of the nationalized group) for flight testing their ATAR axial-flow jet engine which has

been running on test at thrust ratings of about 6,000 lbs. static. The airplane is also suitable for testing French developments of the German Junkers Jumo 004H engine.



Systems Engineering

Guided missiles experience aids Martin in implementing this airplane design concept

Guided missiles were the first aircraft to attain supersonic speeds—the first to acquire fully automatic control—and the first to require the close design integration of components which The Glenn L. Martin Company calls *Systems Engineering*. Today, with piloted airplanes also passing the sonic barrier and being assigned increasingly difficult missions, it is essential that they, too, be designed as integrated air-borne systems, not merely as flying vehicles whose sole goal is speed.

With a background of demonstrated accomplishments on top level missiles projects and continuous growth in this field, The Glenn L. Martin Company has carried over *Systems Engineering* from its missiles experience to its airplane designing. The Martin engineering staff has been shaped and manned to provide proper emphasis on all three of the basic types of functional elements involved in the production of a modern airplane—airframe and power plant—electronic flight and navigational controls—and military armament or passenger facilities.

Martin *Systems Engineering* recognizes that the immediate problem of aeronautical engineering is not to concentrate exclusively on airframe performance, but to integrate the necessary electronic and mechanical systems into the airframe design to produce a truly effective military weapon. And, whether the weapon is a manned airplane or a guided missile, it is imperative that the complete development be so scheduled that the end product represents a completely coordinated system. There is no advantage in having an airframe ready for flight testing while the guidance system, which may necessitate airframe changes, is still a gleam in the designer's eye.

That is Martin *Systems Engineering*. That is why radar, servo-mechanism, automatic control, automatic computer and antenna experts—as well as aerodynamicists, structural engineers and electrical, hydraulic, armament and power plant installation specialists—are all part of the well-integrated engineering team The Glenn L. Martin Company offers its customers today.

Martin Ads Tell Air Power Story

Reaching millions of informed, alert American magazine readers, Martin advertisements like this one highlight air power's important role in our country's preparedness program. And survey after survey has demonstrated that their fiction-style appearance attracts an extremely high readership.

The general public and business circles are reached through the pages of *Time*, *Newsweek* and *Business Week*. The men and women who write and edit the news are kept abreast of latest developments through *Editor & Publisher*, *American Press* and *Publisher's Auxiliary*.

America has a 3-Way Stake in its Airlines!

The U. S. airlines gain time for the traveller—help the shipper open new markets—give the nation added air carrier strength in peace or national emergency.



NEXT time you see an airliner leave an airport runway and head for the horizon, remember you have a three-way stake in the far-flung network it represents.

As a traveller, the airlines gain you time . . . for a longer stay at your favorite vacation spot, for a holiday visit with loved ones, for an important business trip. *As a businessman*, the airlines give you faster delivery, smaller inventories, quicker turnover, bigger profits. *And as a citizen*, the airlines give your country emergency strength vital to preparedness . . . capable of maintaining the continuing needs of our economy in the event our security is threatened.

To handle this triple job, the airlines

are constantly modernizing their equipment . . . flying faster planes, planes with greater capacity, planes with more dependability and planes with greater earning capacity. And in no spot is this modernization more important than in twin-engine transports . . . the backbone of airline fleets for short and medium haul routes that reach throughout the nation.

The new twin-engine Martin 4-0-4 Airliner is a good example of airline progress. Already ordered by Eastern Air Lines and Trans World Airlines, to modernize their twin-engine fleets, it flies 100 m.p.h. faster, carries 40 passengers in its pressurized, air-conditioned, comfortably quiet cabin. It's a worthy development of the dependable Martin 2-0-2, which has been serving passengers of Northwest Airlines and leading South American lines for almost three years. THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.

Train in a field with a future . . . Aviation! See your local Air Force, Navy or Marine recruiting officer for details.

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Navy PSM-1 Marlin seaplanes •
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rockets • Air Force XB-51 experi-
mental ground support bombers •
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tems • Precision testing instruments
• Leaders in Building Air Power to
Guard the Peace, Air Transport to
Serve It.

Ends Symbol Interpretation:

Pictorial Instruments Ease Pilot Orientation Problems

By WILLIAM D. PERREAULT

EFFECTIVE use of the omnidirectional radio range for navigation purposes is not dictated by pilot skill alone. No small factor in determining the speed with which the pilot can use this facility and the degree of accuracy attained is a matter of cockpit presentation.

This is the broad conclusion which may be drawn from newly issued CAA Research Report No. 92 outlining a comparative evaluation of the two types of instruments in presenting navigation information. Under consideration in the extensive study conducted by the University of Illinois, with CAA funds, were symbolic and pictorial instruments.

Almost all present-day aircraft instruments are of the symbolic type. They use a numerical pointer reading, needle deflections or numbers in small windows to inform the pilot of his position in an indirect manner. Using the figures the pilot must translate them into his position in space. This takes time and skill.

Graphic Indication

Pictorial instruments, also called graphic-type instruments, present the pilot with information which directly shows this relationship without further consideration. In the case of a pictorial navigation instrument, it would show the station or destination, the aircraft position and possibly a trace of aircraft heading. Either the station or the aircraft would appear to move. The pilot can tell at a glance where the aircraft is in relation to his planned track.

As recently as 1948, when the first of the comparative evaluations was under consideration, there were no pictorial instruments available to test. Consequently the first tests were conducted with pencil and paper. Even so the tests showed the pictorial instruments far superior to symbolic-type presentations and prompted the development of suitable operating instruments for "flight" tests.

The second series of tests confirmed the results of the paper tests. Under the auspices of the committee on aviation psychology of the National Research Council, the University of Illinois conducted a three-phase program using a 1-CA-1 Link Trainer for "flight" tests.

Eight instrument configurations

were used. Five of these were conventional symbolic arrangements similar to that shown in the accompanying drawing. The remaining three were pictorial instruments designed specially for the tests. The arrangement of the most successful pictorial instrument is also shown here. The instrument face is a cathode-ray tube in which the aircraft appears as a "pip."

100% Solution

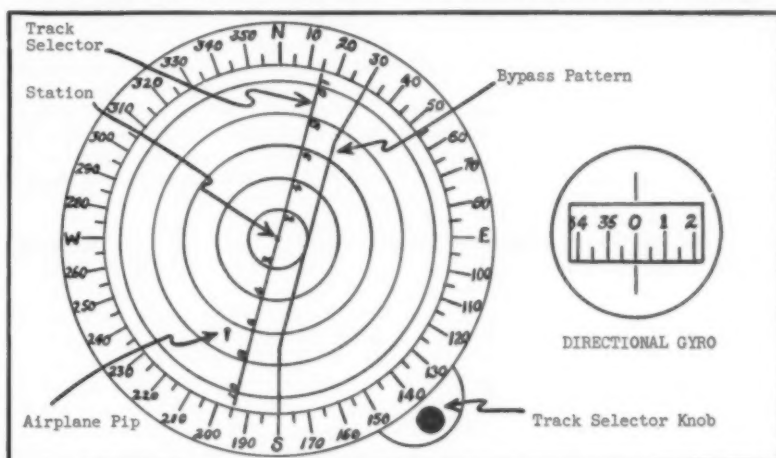
Using these pictorial instruments

some 407 navigational problems were flown without a single unsuccessful solution. While 32 of the problems were flown by pilots with instrument ratings, who might be expected to achieve good results, 375 were flown by private pilots.

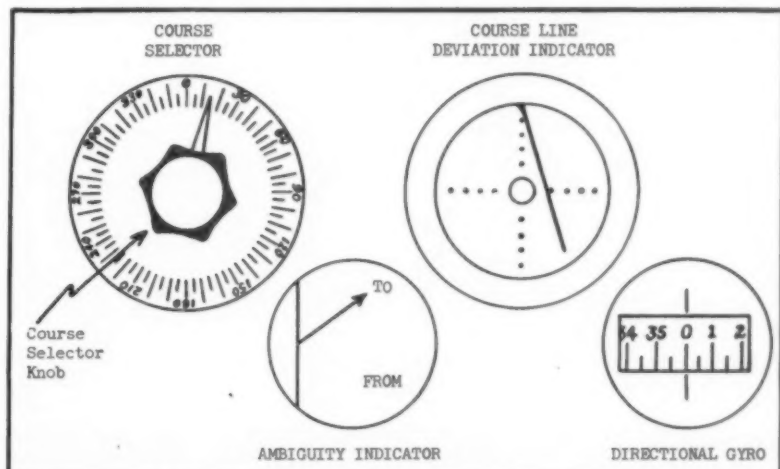
This contrasts significantly with results obtained with the symbolic instruments. Of 439 problems flown with the conventional instruments 50 were unsuccessful—over 11%. Yet 64 of the problems in this group were flown by pilots with instrument ratings.

No better indication of the results exists than the patterns drawn by the crab associated with the Link Trainer (see cuts). The patterns, shown side by side, show the type of problems which were used and the success of the pilots in solving the problems.

All of the problems considered involved an area immediately around the omni-range station, within 10



MOST SATISFACTORY of the three pictorial navigation instruments designed and tested as part of the comparative evaluation described here.



COMPONENTS of a typical symbolic type instrument display used in conjunction with the omni-range navigation equipment.

OPERATIONS & MAINTENANCE

miles. Typical of the problems were those in which the pilot had to fly to or away from the station from his present position, fly to the station or away from it along a designated track, etc. Most of the problems required that the pilot first orient himself with relation to the station, then proceed with the problem.

Test Patterns

The patterns show graphically the results obtained with representative problems using both types of instrument. The solid lines and arrows indicate the flight pattern which the pilots were supposed to make good. The dotted lines show the accomplished patterns. Note that with the symbolic instrument a number of pilots made turns in the wrong direction, overshot the radials on which they should have approached or departed the station and generally wandered off course.

With the pictorial instruments the paths were made almost uniformly good. In a number of spots the projected and accomplished paths merge. Erratic paths, typical of the symbolic instrument paths, did not occur.

A set of standards were established by the researchers on which to base scores. Typical of these scoring points, determining if the solutions

were successful or otherwise, were the excess distance flown on correct solutions, distance flown exceeding established tolerances for altitude and airspeed, number of unnecessary turns made, time required to orient from an unknown position and initiate problem solution, proportion of first turns made in the right direction and the proportion of first turns resulting in the correct initial heading. With respect to established tolerances, pilots were required to hold their assigned altitude within 100 feet and airspeed within five miles per hour.

Using symbolic-type instruments pilots improved their performance significantly with each successive problem. The fifth problem generally required less false turns than each previous attempt. But no improvement in the pilots orientation time during the tests was experienced.

Easier Orientation

With the pictorial instruments all problems were solved with equal ease. Because the performance on the first problem was very satisfactory, there was no room for improvement in successive problems. While symbolic instruments resulted in numerous unnecessary turns, pilots using pictorial instruments averaged less

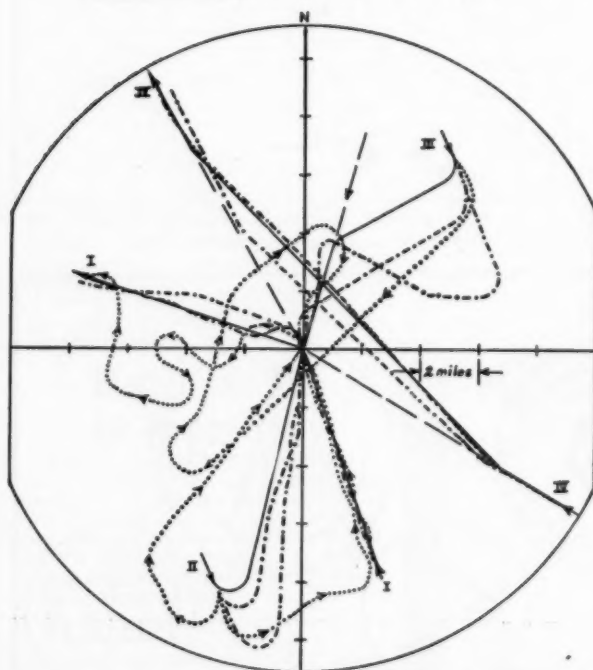
than one unnecessary turn per solution for each type problem. Average time for orientation was 10 seconds, substantially less than with a normal instrument.

The tests showed that orientation and the direction of the first turn are significant factors in a final correct solution. In a typical case, covering 32 problems, 19 out of 26 pilots who made the first turn in the correct direction successfully completed the problem. This emphasizes that the ease of orientation offered by the pictorial instrument is an important factor. Similarly it shows that one of the basic weaknesses in the conventional symbolic instrument is the problem of orientation which it presents.

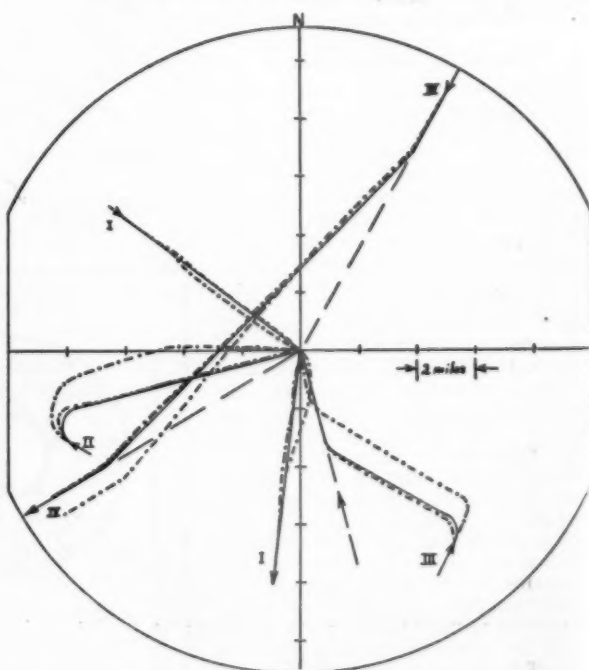
It is important that the tests proved all three pictorial instruments superior to all of the symbolic instruments involved, although it might be possible to design more effective symbolic instruments. Within the group of pictorial units used, the one with the station in the center of the dial, north always at the top and the aircraft portrayed as a moving "pip" on the scope was superior to the rest.

The researchers considered that practice with the symbolic instruments would tend to minimize the difference in end results obtained

Results with Symbolic Instrument



Results with Pictorial Instrument



The Proof—These are the traces made by Link equipment as the pilots navigated the trainer through successive problems. The solid lines with arrows depict the exact route which would result from the correct solution to the problem. The dotted lines of various types show the accomplished route. Note

that with the symbolic-type instruments pilots consistently made turns in the wrong direction and otherwise wandered off course. With the pictorial-type instrument the pilots were consistently on course, seldom deviated even at the very start of the orientation problem.

with the two types. But in an emergency calling for quick action, or presented with a new and unfamiliar problem, the advantages of the pictorial display would again be evident.

Flight Tests Coming

It has yet to be proved that the results obtained on paper and in the trainer would exist in an actual airplane. Some weight is given to the fact that the pilot in a trainer has more time to devote to navigation than would a pilot in actual flight. This would make simple navigation problems of the type considered here more difficult to resolve in flight and make the results obtained by the pictorial instrument more critical.

First opportunity to test the validity of the findings in an airplane will arise within a few weeks when CAA starts tests on the pictorial computer used in conjunction with the omnirange. This computer, being built by Aero Electronics Co., was developed under contract between CAA and AEC with funds allocated by the Air Navigation and Development Board (AMERICAN AVIATION, Dec. 11).

Meanwhile, continued research in the specific project discussed here will have been insured by new funds supplied by the Bureau of Aeronautics and the Division of Aviation Medicine.

Research Report 92, authored by S. N. Roscoe, J. F. Smith, B. E. Johnson, P. E. Dittman and A. C. Williams, Jr., has also been published as Report Number 10 of the USN National Research Council Committee on Aviation Psychology.



Litter Lift—This artist's sketch shows the newly designed Douglas electric lift for stretchers which has been ordered by the Military Air Transport Service. Weighing only 140 pounds, the new lift will handle a 500-pound load, two litters at once.

TECHNICAL NEWS DIGEST

- **CAA representatives, headed by Fred Lee**, deputy CAA administrator, are visiting the transport manufacturing companies to obtain first-hand information on tentative engineering characteristics of transport designs which might be tested under the provisions of the prototype testing law.
- **USAF is testing flareless fluid fittings** in several North American F-86 jet fighters based at Selfridge AFB, Mich. Fittings are similar to those proposed in a CMAS standardization proposal.
- **An Electronic Tube Division** has been formed by the Westinghouse Electric Corp. and plans are underway for three new manufacturing plants for tubes. Until now Westinghouse has manufactured its tubes at Bloomfield, N. J. Sites for the new facilities have not been announced.
- **Purchase of radio communications and navigation equipment** and runway lighting for five airports in Portugal's African territories has been approved by the Economic Cooperation Administration. ECA approved the use of up to \$1,037,000 in Marshall Plan funds for purchases made in the U. S.
- **An overhaul shop specializing in landing gear work** has been established at 707 South Victory Blvd., Burbank, Calif. Company is headed by Robert D. Hodge, formerly with Aviation Maintenance Corp.
- **Control of all radio transmitting stations** which might be used by a potential enemy for navigation of piloted or pilotless aircraft or missiles directed toward targets in the U. S. has been requested by the USAF. The proposal, which would vest authority in USAF for use by FCC, would affect all equipment operating in a frequency band from .010 megacycles to 100,000 mc.
- **A contract to train an undisclosed number of Military Air Transport Service crews** in the Dehmel Flight Simulator has been signed by Pan American Airways. The PAA Dehmel unit, built by Curtiss-Wright, is based on the Boeing Stratocruiser cockpit and aircraft.
- **A price reduction of about 18%**, from 44½¢ to 36½¢ per pound, in carload lots, has been effected on methyl methacrylate monomer by Rohm & Haas Company. This is one of the chief intermediates used in Plexiglas. Price reduction resulted from improved manufacturing procedures and expanding market.
- **Last two of Chicago & Southern Air Lines' DC-4's** will go to Resort Airlines, subject to delivery of the new C&S Lockheed Constellations in the spring of this year. Sale was arranged through Central Purchasing Agency, Inc., Miami.
- **A new sulfuric acid alkylation unit**, originally designed to increase the supply of high octane automotive fuels, is now being modified by the addition of a re-run tower to produce aviation gasoline. The unit, nearly completed at the Barber Refinery of California Refining Co. in Perth Amboy, N. J., will produce alkylate from a mixture of isobutane and either butylene or propylene.
- **A new flame-resistant thermoplastic sheet material** for use in aircraft applications has been introduced by the United States Rubber Co. Known as Royalite, the easily formed sheet is available in four standard colors and five grains.
- **Probable cause of the crash of the Northwest Airlines Martin 2-0-2** at Minneapolis on March 7 of last year has been established by CAB as an "attempt to complete a landing approach by visual means during which time visual reference to the ground was lost." This was the incident in which the plane struck a flag pole during an approach to the airport.
- **The U. S. Public Health Service** has awarded \$21,421 to Dr. Alberto Hurtado, Panagra's medical officer, to make a study of the effects of high altitude on the human body for the Institute of Andean Biology, Lima, Peru.
- **KLM Royal Dutch Airlines** has modified a Douglas DC-3 for the Netherlands Government School of Aviation for use as a navigation and meteorologist trainer. Seats have been removed, three astrodomes and four tables for student meteorologist and navigator positions installed. Installation increased plane weight by about 400 pounds.

Seating Innovation Stirs Industry Interest



DEMONSTRATION model of Bennett hammock-type aircraft seat built by Aerotherm Corp., Bantam, Conn.

A REFRESHING idea in aircraft seating, Jess Bennett's hammock-type aircraft passenger seat provides sleeperette type comfort in the same space required for an ordinary seat.

But comfort, while of interest, is not the major attraction offered by the new seat. Safety is the keynote of the hammock chair. In his years of airline experience, Jess Bennett, assistant to the president of Braniff Airways and inventor by hobby, decided there was room for improvement in passenger seat design. The hammock-type chair is the result.

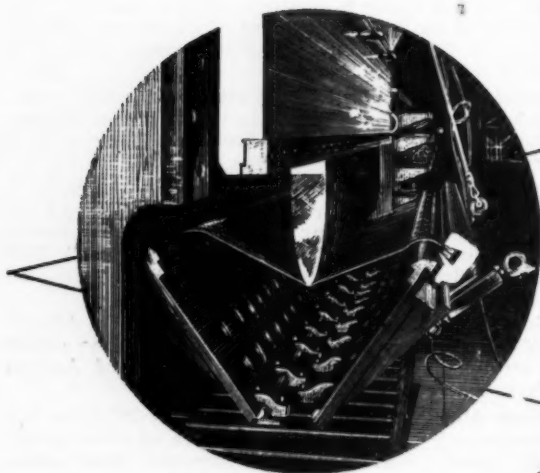
Simple Design

Late last month, after many bread-board models had shown the way, Bennett had a "pushed-up" model of the seat ready for demonstration (see cut). It was built by the Aerotherm Corp. of Bantam, Conn., successors to the Warren McArthur Corp., wartime manufacturers of aircraft seating. Aerotherm built the chair to Bennett's specifications in record time.

The hammock chair is extremely

Fast Way to Build Fast Fighters!

Special press devised by Northrop cuts production time on single operation for wing leading edges from 8 hours to 2 minutes.



Hours saved by special manufacturing techniques at Northrop mean faster delivery of all-weather Scorpion F-89 interceptors for our country's defense. These speedy, heavily-armed U. S. Air Force F-89's, with electronic search equipment, are worthy successors to the hundreds of deadly P-61 Black Widows built at Northrop during World War II.



NORTHROP®

Pioneer Builders

simple in design. The entire seat swings freely between two large tear-drop-shaped springs formed of flat stock. The "hammock" is suspended from these springs which form the outer panels of the seat. The shape of the hammock is shown in the sketches. The outer frame is of ordinary tubing. The seat back and bottom are formed by horizontal tubular members spaced by coil springs. An easily detachable cushion covers the whole seat and two large coil springs hold the seat upright. There are no cables, no actuating cylinders, pulleys, etc. Part of the frame forms a foot-rest which moves with the seat.

When the passenger is in the seat, he controls seat position by merely shifting his weight. But regardless of seat position, his center of gravity is always below the pivot point of the hammock. Any sudden increase in "G's," as might result in an accident, causes the chair to spill backward, throwing the entire weight against the chair seat. Instead of throwing the passenger forward, the designer claims, the seat puts the occupant in the position in which he can stand a maximum impact load.

This is the theory. Representatives of the USAF, Navy, the airlines, and the principal organizations dealing



ACCELERATED position (left) and crash position of Bennett hammock-type aircraft seat. This spilling motion contrasts with conventional fixed seat which allows passenger's upper body to pivot at hips and strike seat ahead.



in aviation safety (CAA, CAB, etc.), have examined it and agree with the principal involved. Indications are that one of these groups will soon undertake full-scale tests of the seat to prove the safety aspects involved.

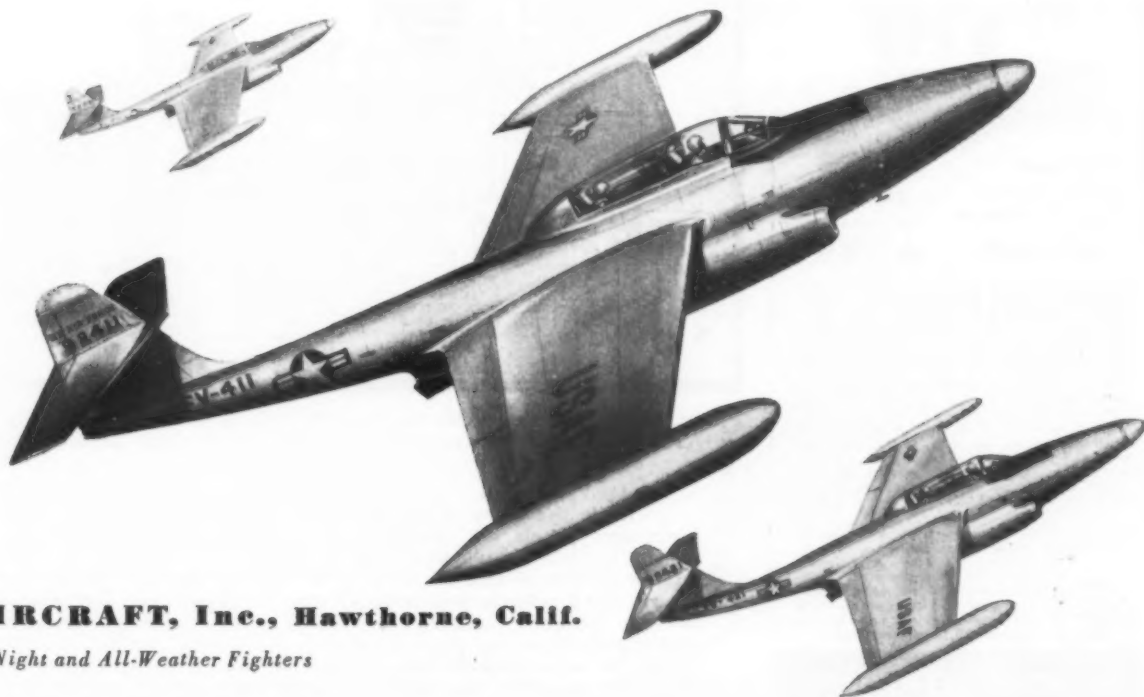
Head-Rest Appeals

Meanwhile, some of the general design features of the seat are attracting attention. Several airlines have requested estimates on the cost of converting their existing equipment for the folding head-rests shown in the photo. Note the left headrest

in photo folded into the back while the one on the right is in use.

When the hammock-type seat is not in use, the entire mechanism of the seat back and bottom, having no rigid components, can be pushed forward making room for large pieces of air cargo. This same seat flexibility combines with simple structure to make the seat interesting to the maintenance men and cleaners.

Finally, the simple cushion covering the back and seat can be made of a material which will float, making a useful life preserver on over-water flights.



AIRCRAFT, Inc., Hawthorne, Calif.

f Night and All-Weather Fighters

AMONG THE SUPPLIERS

Sperry Gyroscope Co., Great Neck, N. Y., which now employs 10,500 will hire about 3,000 new workers during 1951. The company has added 1,500 people in the last nine months . . . The Air Force has awarded a contract to **Loewy Hydropress Co.**, of New York for construction of two heavy hydraulic presses with a capacity greater than 50,000 tons. The presses, large enough to turn out an entire wing section, will be in operation by mid-1952.

General Electric Co. is expanding its jet engine assembly plant at Lockland, Ohio, which will permit manufacturing components at the plant, which the company has not been doing. GE will have about 3,300,000 sq. ft. of floor space at Lockland.

U. S. Rubber Co. has purchased the Buna-N synthetic rubber plant of **Esso Standard Oil Co.** in Baton Rouge, La. . . . **Westinghouse Electric Corp.** will build a new plant in Union City, Ind., for production of small electric motors. Expected date of production at the new plant is late 1951. . . . **H. E. Coleman** has been appointed manager of **Westinghouse Electric Corp's.** industry engineering departments with headquarters at the East Pittsburgh Divisions. He succeeds **F. R. Benedict**, who was recently assigned to the company's Atomic Power Division.

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EQUIPMENT



Get static-free communication and the added reliability of omni range navigation by installing A.R.C.'s Type 17 2-way VHF Communication System. The 15B Omni Range Navigation Equipment. With the 15B and the 17, the VHF omni stations now covering the country, you fly directly in less time. You can receive weather broadcasts simultaneously with the navigation signals—*static free!* The 15B takes the work out of navigation and provides long, trouble-free life. The Type 17 provides an independent communication system for use while the 15B is busy providing navigational information. Other A.R.C. equipment provides LP range and broadcast reception, and rotatable loop navigation.

All A.R.C. Airborne equipment is Type Certificated by CAA. It is designed for reliability and performance — not to meet a price. Installations for both single and multi-engined planes are made only by authorized service agencies. Write for further details or name of your nearest A.R.C. representative.



Aircraft Radio Corporation
BOONTON, NEW JERSEY

Extra Section

By William D. Perreault



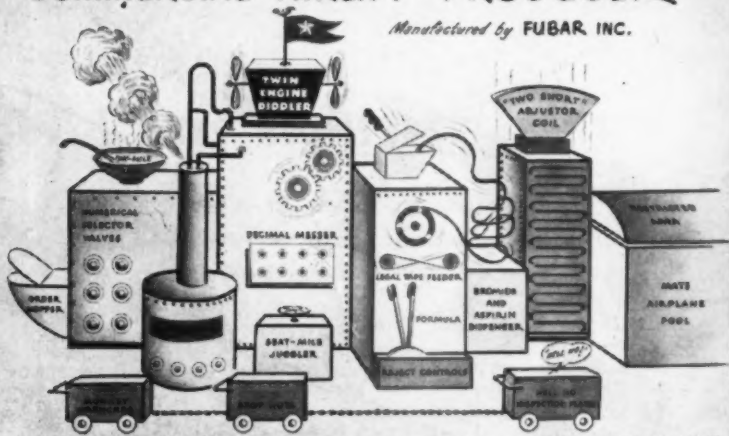
PERIODIC activity reports, filed annually by certificated mechanics, tower operators, dispatchers and ground instructors, will no longer be required. In amendments to each of the CAR's affecting these ratings CAB has eliminated the requirement for a yearly accounting of work performed under the provisions of the ratings. This should be a welcome change to those holding certificates and also to management in organizations where responsibility for compliance is handled centrally. If you work part-time in one of these fields it will be doubly important that you personally check on meeting minimum annual experience requirements of the certificate.

The complete transcript of the 1950 Aircraft Spark Plug and Ignition Conference is now being circulated by Champion Spark Plug Co. This significant contribution to the science of ignition and the cause of lower maintenance costs should be required reading for those closely associated with ignition problems, whether in engineering or in maintenance.

Competitive factors being what they are, ATA Vice President **Brig. Gen. Milton Arnold** has his problems in arranging for commercial

COMMERCIAL AIRLIFT PRODUCER

Manufactured by FUBAR, INC.



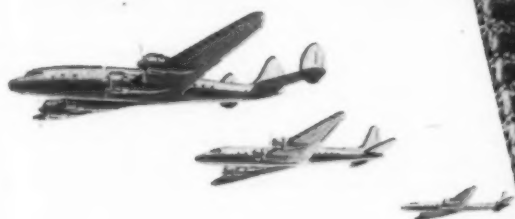
airline planes for the Pacific Airlift. This Christmas card, given Arnold by ATA's research staff, proposes a simple solution to airlift problems.

While the recent CAB regulation requiring standardized flight instrument panels and certain control handle knobs applies only to new aircraft coming under the provisions of CAR Part 4b, CAB intends to extend this to existing air carrier aircraft in the near future. CAB officials feel strongly that the experience exchanging aircraft between military and commercial operations and of exchanging crews, as required during the Pacific Airlift, calls for action. It is unfortunate that decisive action has been delayed this long. The growing importance of commercial airlift, material and manpower shortages are bound to work against any standardization effort for some time to come.

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PRETESTED IDEAS

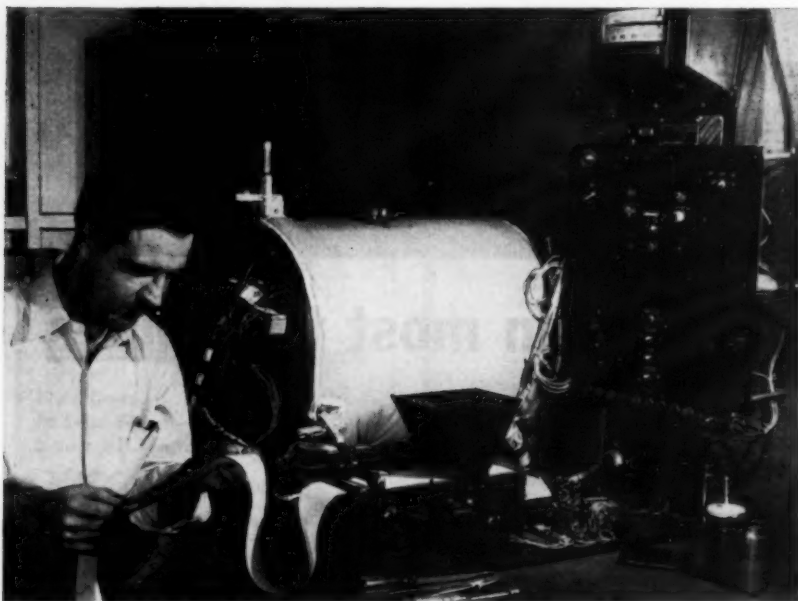
Diffuser Rework

AT LEAST six hours work per unit was saved as a result of an idea for reworking the diffusers of the Pratt & Whitney R-2800 engines at Pan American World Airways. When PAA issued an engineering authorization calling for a rework of the R-2800 engine diffuser section it carried with it a 16-step procedure. First, the diffuser blades were turned down in the lathe, then the diffuser was assembled and mounted in the diffuser case, sent back to the machine shop for additional machining, then back to assembly and to the drill

press for spotting holes for the spacer.

Peter Wentzel, a PAA mechanic, reversed the machining on the blades of a worn-out diffuser, making a jig to hold the diffuser while machining the space for the ring. This eliminated six operations and resulted in

an improved finished product. Pan American's Suggestion Plan awarded Wentzel \$100 for the idea. Wentzel, left, is shown with the rework jig while Roger J. Wilkie holds the parts that formerly had to be chucked in the lathe during the rework.



"Thermostatograph"

ENGINEERS at Fairchild Aircraft Division developed this interesting unit, which they call the "thermostatograph," to test a complete set of heater switches for the Fairchild C-119 Packet at one time. Low-temperature cut-off switches, heater cycling and overheat switches making up the control set-up for the eight heaters in the Packet, are placed in the door of the barrel-shaped oven. A recorder is connected to each switch by means of a remote cable. With the oven and recorder on, the

oven cycles automatically between the high and low temperature settings of the switches. A paper tape threaded through the recorder is traced with eight metal pencils controlled by the switches. Low-temperature cut-off switches, normally open when the heaters are inoperative, form no line when the oven temperature is lower than 300° F. At 300°, if the switches operate correctly, the recorder starts drawing the line. Instant observation of the switch performance is possible by flashing lights for each switch on the control panel.

Cleaning Unit

THIS PORTABLE cleaning unit, known as a "Gunk" dispenser to Navy men, was designed by two Navy chief petty officers: E. C. Goodwin and G. W. Purinton. It consists of a 350-gallon tank and air compressing unit mounted on a flat wagon. The compressor is used to build up and maintain 120 pounds air pressure in the tank and to spray the emulsion cleaner onto the plane.

Three types of nozzles are used ranging up to 17 feet in length to make all the aircraft parts readily accessible. Two hose outlets from the tank permit two cleaners to work different areas simultaneously. After the compound has been sprayed on and allowed to set a short time, a firehose and reduced nozzle is used to remove the compound and dirt.



NEW PRODUCTS

Vibration Isolators

A new series of barrymounts featuring completely metallic construction has been announced. Designed specifically for aircraft and electronic applications at high-speed flight conditions, the



series use metal springs to handle large static deflections without perceptible drift. Highly compressible, resilient, knitted wire pads provide vibration damping. The

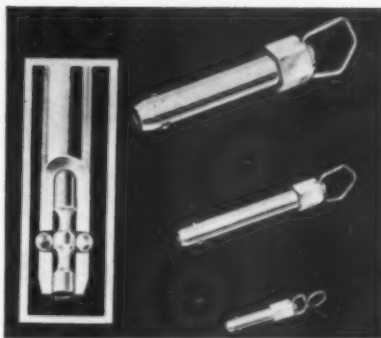
ALL-METL Barrymounts are unit mountings, interchangeable with air-damped and other isolators or furnished in conjunction with a complete line of mounting bases built to specification JAN-C-172A. Special designs also handled. The unit mounting is 2-3/8 inches square and 1-19/64 inches high, under minimum rated load. Four mounting holes are on 1-15/16-inch centers. Catalog No. 509 giving dimension data and load ratings is available.

When writing the **Barry Corp.**, 179C Sidney St., Cambridge 39, Mass., please mention AMERICAN AVIATION.

Riveter's Tape

A riveter's tape and a masking tape for "Plexiglas" installation have been announced by Minnesota Mining and Manufacturing Co. The masking tape, Scotch brand cellophane fibre 670, is designed to mask against the spread of solvents used in cementing Plexiglas on aircraft. Tensile strength is 40 pounds per inch of width and thickness of 5.2 mils. Made in a 2.592-inch length and in widths of 1/2, 3/4, 1 and 2 inches with special widths available on order. The riveter's tape, number 775, is a transparent acetate fibre tape with pressure sensitive adhesive on the edges only. It cuts riveting time by holding a row of rivets in place for riveting. Made in 3/4 and 1-inch widths in 1.296-inch lengths. Five-mil thickness and tensile strength of 25 pounds per inch of width.

When writing to **Minnesota Mining and Manufacturing Co.**, 900 Fauquier St., St. Paul 6, Minn., please mention AMERICAN AVIATION.



Tie-Down Fittings

A quick-release pin, used like a bolt except that no separate retaining items are needed, has been introduced by Aviation Development, Inc. Known as "Pip" pins, the new units is simply inserted into holes in the parts to be held and will take very high shear and axial loads in such applications as tie-down fittings. A simple push or pull will engage or disengage the pin as required. Inside the pin housing a spring-loaded steel spindle, operated by a button-type head, controls the position of steel balls which accomplish the locking action. In the normal position the large diameter of the spindle bears against the steel balls holding them out so they project above the outer surface of the pin. When the spindle is moved the balls recede into the walls of the pin permitting the pin to be withdrawn.

When writing to **Aviation Development, Inc.**, 2940 North Hollywood Way, Burbank, Calif., please mention AMERICAN AVIATION.

Shut-Off Valve

An electrically operated shut-off valve for use in hot air applications with temperatures up to 800° F. has been developed for jet engines and similar ap-



plications by **Hydro-Aire, Inc.** Ambient temperature range of the unit is from -65° to +700° F. Operates on 14-30 volts d.c. Valve is normally open but closes if current fails. Operating pressures range from 35 psi to 215 psi. Opening time is one-half second. Maximum operating current is 10 amperes instantaneous, with maximum holding current of 1/2 amp. Details on this and other valves in this line available on request.

When writing **Hydro-Aire, Inc.**, Burbank, Calif., please mention AMERICAN AVIATION.

Welding Equipment

A hand torch and automatic wire drive unit for argon metal arc welding, particularly adaptable for welding aluminum in ranges of thickness from 1/8 to 1 1/2 inches, has been announced by The Linde Air Products Co. The unit consists of a Linde FSH-4 Argon Metal arc hand-welding torch and FSM-2 rod feed unit. The consumable electrode serves as the filler material. Welding rod is fed from a coil into an argon-protected atmosphere at a steady predetermined rate. Rod feed, argon flow and cooling water are automatically controlled. An electronic governor gives accurate and uniform rate of rod feed variable from 80 to 380 inches per minute. Portable, Argon



metal arc welding has been performed on metal thicknesses from 1/16 to 3/4 inches in aluminum and copper alloys, stainless steel and similar metals.

When contacting **The Linde Air Products Co.**, 30 East 42nd St., New York 17, N. Y., please mention AMERICAN AVIATION.

Motor Grader

A heavy-duty motor grader featuring an improved transmission of the constant-mesh type has been designed by The Galion Iron Works & Manufacturing Co. It also features six overlapping forward speeds ranging from 1.3 to 22.6 miles per hour and two reverse speeds. Reverse speed of 10.5 mph is available. One lever provides all speeds forward and reverse.

The Galion Model 118 is powered by a 100-horsepower Diesel engine; uses positive all-gear, four-wheel tandem drive; full hydraulic control; and extra-rugged, box-type, single-member frame, high-arched for maximum adjustment of the blade. Hand steering with hydraulic booster and large front tires are standard equipment. Weight is from 23,560 pounds up, depending on extra equipment. Additional data available from the manufacturer.

When contacting **The Galion Iron Works & Manufacturing Co.**, Galion, Ohio, please mention AMERICAN AVIATION.

Aiming High-at 100% Dependability!

For several years United has been carrying on a co-ordinated program to improve the on-time, all-season dependability of air travel. This program has been greatly accelerated by recent technical advances.

Modern multiple routes have been developed between cities served by United's long-range DC-6 Mainliner 300s. This enables United to route its flights where weather is best. New electronic landing aids permit

safe, on-schedule operations through overcasts that formerly closed in airports.

Now, to an extent unheard of two years ago, dependable all-season travel is yours on the Main Line Airway. And last year United flew 98% of all scheduled miles!

No form of travel has ever achieved 100% on-time performance. But it's the determined *effort* to come as close as possible that sets United apart.



Going by Mainliner often costs less than 1st class surface travel. For reservations call or write United or an Authorized Travel Agent.



THE NATION'S NUMBER 1
COAST-TO-COAST AIRLINE



COMPLETE CONTEST PACKAGE:

American, TWA Push Plane Travel as Incentive Awards

By KEITH SAUNDERS

SALES PROGRAMS which substitute air travel for merchandise in the incentive plans of industrial and commercial firms are being pushed by Trans World Airlines and American Airlines.

Both airlines are selling the travel award plan to companies as a complete package; that is, the company just buys the travel and the airline or an agent of the airline provides the campaign literature, plane and hotel reservations and other incidentals.

Actually, there are two distinct markets susceptible of being tapped by this new incentive plan. They are:

- Travel as an incentive to *sell* more.
- Travel as an incentive to *produce* more.

TWA, initially at least, is slanting its program at the incentive-to-sell market, going after the business of industrial and commercial firms that hold periodic sales contests in which their salesmen compete for prizes offered on a company-wide, divisional or territorial basis.

\$50 Million in Prizes

It has been estimated that there are as many as 1,000,000 salesmen who compete for such prizes in the course of a year, and the vast majority of the awards in such contests have heretofore been items of merchandise, ranging from automobiles to radio-phonograph combinations, washing machines, ironers, food mixers, electric toasters and sets of dishes.

The total amount expended on awards in such contests has been estimated as high as \$50,000,000, and an almost insignificant portion of this has been in the form of all-expense trips.

The only conclusion to be drawn from this is that here is a rich potential market for air travel that is just waiting to be tapped by airlines that go after it with a constructive and energetic sales approach.

Production Incentive

American Airlines is selling its plan primarily as a device to be used on an incentive for increasing production, reducing absenteeism, improving safety records, reducing spoilage

or as a stimulant for other activity requiring individual effort.

The airline is offering the plan in cooperation with the American Express Co.

American's packaged program, called "Million-Air Holidays," also includes the expert handling of all prize tours awarded without additional expense to the firm buying it.

Arrangements for transportation will be handled by the airline, and the ground portion of the tours will be operated by American-Express. The Carr Speirs Corp., Stanford, Conn., with 31 years of experience in the field of incentive campaigns, provides the materials with which the industrial and commercial firms buying the plan can conduct their incentive contests.

Contest Materials

These materials include a catalog of the all-expense prize tours available, a plan book, a display map, a series of inspirational display posters, travel coupons and a wallet in which to carry them, dangles, stickers and lapel pins, membership cards for trip winners, "teaser" postcards to arouse

curiosity, and a series of flash bulletins to keep interest alive.

C. R. Speers, general sales manager for American Airlines, described the program as "an example of an entirely new outlet for a product in an entirely new field."

"It's a sales technique based on an appeal to a secondary market, and it is sold by our salesmen to satisfy needs other than for the direct use of air transportation," he pointed out.

Speers added that the program is especially timely in that it might bear directly on the important problem of spurring individual effort and accomplishment in helping meet the production records of defense industries in a period of national emergency.

American and TWA have started something that may well develop into one of the greatest sales tools the airline industry has ever had.

Helicopter Traffic Disappointing to BEA

British European Airways' scheduled helicopter passenger service, now finishing its first winter, has been doing rather well from the operational standpoint and not so well from the traffic standpoint.

Regularity figures for the first four months of the helicopter operation, first of its kind in the world, average 96.5%, the monthly averages being



Discussing Program—Trans World Airlines sales officials discuss travel award sales promotion campaign now being directed at industrial and commercial firms sponsoring sales and production incentive contests and programs. Shown, left to right, are: C. S. Fullerton, TWA general sales manager; J. N. Martin, Atlantic region sales manager; and E. O. Cocke, vice president-sales.



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Route your passengers via MCA for dependable flights through Mid-America with convenient connections everywhere.

MID-CONTINENT AIRLINES

Serving the Heart of America Safely
for Over 16 Years

33 Cities and 16 years...

Thirty-three *important* cities — from New York to Miami...from New Orleans to Havana, Cuba — lie along the route served by National Airlines, the Airline of the Stars.

In its 16 years of operation, National Airlines has become *known* for fine equipment, fast flying time, passenger comfort, and courteous service. *All* of these are provided to the *highest degree* in National's famed STAR flights — DC-6 Luxury PLUS!

Airline of the Stars

NATIONAL ★ Airlines



TRAFFIC & SALES

as follows: June, 98.9%; July, 93.3%; August, 100%; September, 93.8%.

These figures, incidentally, vary by only a few decimal places from the regularity averages of the fixed-wing aircraft that flew the same route—Liverpool-Cardiff—during the summer of 1949, when weather conditions were much better than they were this year.

Disappointing Loads

Passenger acceptance of the new service, on the other hand, was not up to BEA's anticipations. Total revenue passengers carried to October 31 was 668, while the passenger load factor worked out to an average of about 43%. Despite a winter cutback to one roundtrip per day, instead of the two originally operated, this figure is not expected to be bettered much if any during the remainder of the winter.

Thus far, no mechanical troubles of any seriousness have been experienced, which BEA thinks vindicates its new maintenance scheme. Under this procedure, designed to ensure between seven and eight hours of flying a day with three Sikorsky S-51 helicopters, all maintenance operations up to the 200-hour inspection are done progressively during the daily five-hour inspections. The larger operations required in the 200-hour and 400-hour inspections, such as changing the rotor head or gear box, are done on a Sunday when no schedules are flown.

Operation of the helicopter passenger service over the 145-mile route between Speke Airport, Liverpool, and Peagam Moor Airport, Cardiff, has so far been limited to contact conditions, with weather minimums set at 500 feet cloud ceiling over local terrain and one-half mile visibility.

Has IFR Authority

However, BEA has permission to fly the S-51 under instrument flight rules, a great deal of instrument flying having been done during its night mail service between Norwich and Peterborough last winter.

BEA decided on the Welsh route because the Welsh Advisory Council on Civil Aviation was pressing for the resumption of air service linking Cardiff and Liverpool, the previous service by six-place de Havilland Rapide aircraft having been discontinued in the fall of 1949.

Moreover, the length of the route, though a little longer than the ideal for the S-51, was short enough to permit carrying a full payload of three passengers with the normal domestic free baggage allowance of 15 kilograms (33 lbs.), fuel for the

AMERICAN AVIATION

Over the Counter

Sales Promotion

B RITISH Commonwealth Pacific Airlines has sent us from Sydney, Australia, its three latest direct mail promotion pieces. One is a small cartoon booklet, done in verse, intended to establish the company's name with travel agents. The other two stress the comfort of BCPA's Pacific service ("the only free sleeper service, the only DC-6 service"). They're all well done, in a light vein, and are very readable . . . **Capital Airlines** is adding a feature to the tie-in advertising arrangement it has had for more than a year with **Girard-Perregaux**. Clocks featuring "Time by Girard-Perregaux . . . Official Capital Airlines watch" are being installed by the airline in each of its 100 ticket offices. Clocks are about two by two and one-half feet in size, with a transparent plastic face on which both the hour indicators and the display lettering is etched. Capital also ties in with the watch company in newspaper ads, timetables and ticket holders.



UAL Pension Plan—R. F. Ahrens (seated).

United Air Lines' vice president-personnel, and Curtis Barkes, v. p.-finance and property, study rise in employee participation in the company's voluntary retirement income plan. When started ten years ago, it was the first such plan in the air transport industry.

trip against a 30 mph headwind, plus adequate fuel reserves.

To Operate Full Year

Fuel-warning lights give adequate notice to the pilot when an emergency refueling stop is necessary because of excessive headwinds, but so far no such stop has been necessary, although intermediate stops have been made on occasion because of bad weather.

The helicopter service probably will be operated at least until next summer, after which BEA officials will seek to evaluate on the basis of a full year or more of service whether it should be continued, discontinued or supplemented with other similar services.

CAB CALENDAR

Jan. 22—(Docket 4387 et al.) Hearing in Wisconsin Central Airlines Certificate Renewal Case. 10 a. m., Room E-214, Temporary Building 5, Washington, D. C. Examiner Warren E. Baker.

Jan. 22—(Docket 3844) Hearing in Miami Airlines, Inc. Sec. 291 Exemption Case. 10 a. m., Conference Room "A," Departmental Auditorium, Washington, D. C. Examiner Ferdinand D. Moran. Postponed from January 8.

Jan. 22—(Docket 2019 et al.) Hearing resumed in Reopened Additional California-Nevada Service Case. 10 a. m., 810 Federal Building, Los Angeles, California. Examiner Merritt Ruhlen.

Jan. 23—(Docket 2724) Oral argument before the Board in Colonial Airlines, Inc. National Mail Rate Case. 10 a. m., Room 5042, Commerce Building, Washington, D. C.

Jan. 23—(Docket 4730) Hearing in British Overseas Airways Corporation Service to

Douglas Aircraft Co. has approved intensified 1951 domestic and international advertising programs, designed to help the airlines, as recommended by its agency, J. Walter Thompson Co. Domestically, *Saturday Evening Post* and *Life* will carry black and white pages aimed at broadening the air travel market in general and selling DC-6 seats in particular. To support overseas DC-6 users, Douglas will use black and white ads in international editions of *Life*, *Time*, *Newsweek*, *Reader's Digest*, *New York Times* and *New York Herald Tribune* . . . Incidentally, J. Walter Thompson has taken over advertising of **Pan American World Airways'** Latin American Division. Agency has handled Atlantic and Pacific-Alaska divisions for many years.

New easy-to-read direct mail folder by **Air Express Division** of Railway Express Agency, entitled "Were Our Faces Red" (because "people didn't know all they should about air express") seeks to clear up "misconceptions." Some of the misconceptions are: "I thought the destination had to be an airport city"; "Aren't rates too high for regular use?"; "Doesn't air express go only on certain flights?"; "Don't you have to add something for special door-to-door delivery?" and "Surely you don't get valuation coverage for nothing."

Novel way of acquainting customers with introduction of Martin airplanes to **TWA** service was devised by **Marty Wentworth** and **Jim Pasley**, of company's St. Louis office. It's a regular birth announcement card, and on the inside the "baby's" name is given as Martin Skyliner; date of birth, Jan. 1, 1951; weight, 40,000 lbs.; parents, Trans World Airlines. Attached to the card with ribbon is a small model of the Martin.

Traffic and Services

A MERICAN Airlines announced Jan. 7 as starting date for new "Toltec" flights, daylight service from New York and Chicago to Mexico City. New York-Mexico City section operates daily via Washington and Dallas; Chicago section operates daily connecting at Dallas with New York section . . . **Pan American World Airways** planned to inaugurate non-stop service on or about Jan. 16 between London and Hamburg, New York and Paris, and Boston and Paris . . . PAA opened non-stop service earlier this month between London and Beirut, Lebanon.

Because some of its aircraft have been requisitioned by the Canadian government for use in the Korean airlift, **Canadian Pacific Air Lines** has canceled plans for additional service to Honolulu, and will also be unable to include Auckland, New Zealand, as a stop on its Sydney-Vancouver route . . . **KLM Royal Dutch Airlines** has signed a sea-air agreement with Alcoa Steamship Lines for travel between New York, the Caribbean and South America.

Northwest Airlines' one-way sleeper service charge Seattle-Honolulu is to be reduced from \$25 to \$10, according to application filed with CAB . . . **Southern Airways** will inaugurate service at Tupelo, Miss., on Feb. 1, through Tupelo Municipal Airport.

—ERIC BRAMLEY

TRAFFIC & SALES

Boston Case. 10 a. m., Room 5040, Commerce Building, Washington, D. C. Examiner Curtis C. Henderson.

Jan. 30—(Docket SR-7-201) Oral argument before the Board in Civil Aeronautics Administrator vs. Aviation Corporation of Seattle, dba Westair Transport. 10 a. m., Room 5042, Commerce Bldg., Washington.

Jan. 31—(Docket 4052) Prehearing conference in Mid-West Airlines Certificate Renewal Case. 10 a. m., Room 5040, Commerce Building, Washington, D. C. Postponed from January 10.

Feb. 5—(Docket 2210) Hearing in Caribbean Atlantic Airlines Mail Rate Case. Tentative.

Feb. 7—(Docket 4586) Hearing in West Coast Common Passenger Fares Case. 10 a. m., Room E-214, Temporary Building 5, Washington, D. C. Examiner F. Merritt Ruhlen. Postponed from January 8.

Feb. 12—(Docket 3693 et al.) Hearing in Mid-Continent Airlines Route 80 Renewal Case. Tentative. Examiner Walter W. Bryan.

Feb. 19—(Docket 4034 et al.) Hearing in Indiana-Ohio Local Service Case. Tentative. Examiner Warren E. Baker. Postponed from January 22.

March 5—(Docket 2849 et al.) Hearing in Big Four Mail Rate Case. Tentative. Postponed from January 8.

April 19—(Docket 4059 et al.) Hearing in CAB investigation of airline tariff liability rules. Tentative. Postponed from March 19.



Wing-Like—Flatiron shape of building housing Capital Airlines' new ticket office in Pittsburgh's Lower Triangle permitted incorporation into the exterior design of an overhang resembling an airplane wing. New quarters are located at Liberty and Oliver avenues and house a ticket office, reservation and communication center and district sales office.

combustion engineering—in action—for air progress

squeezed air

... to shrink a heater

Janitrol
with the whirling flame

AIRCRAFT HEATERS
AIRCRAFT - AUTOMOTIVE DIVISION •
SURFACE COMBUSTION CORP., TOLEDO 1, OHIO

Here's hot news on the vital problem of anti-icing the new knife-sharp jet wings: a brand new heater that packs more heat into less space than ever before—by using "squeezed air"! A small percentage of air is bled from the jet engine compressor, fed to a pint size heater that boosts final air temperature way up to 650° at 90 psia. Superheated air can then be piped in small tubing to the heat distribution system. This job is one of many Janitrol developments that hold great promise for aircraft of the future.

F. H. Scott, New York, N. Y., 225 Broadway; C. B. Anderson, Kansas City, Mo., 1438 Dierks Building; Lee Curtin, Hollywood, Calif., 7046 Hollywood Blvd.; Frank Deak, P. A. Miller, Central District Office, Engineering Development and Production, Columbus, Ohio; Headquarters, Toledo, Ohio.

ADMINISTRATIVE

Miss Myra Black, assistant secretary of Trans World Airlines with offices in Washington, completed her 20th year of service with the company this month and was presented with a diamond 20-year pin and a lifetime pass by Warren Lee Pierson, TWA board chairman.



Black

John Leslie, vice president of Pan American World Airways, was able to return to his office on January 9 for the first time since being seriously stricken with polio several months ago.

OPERATIONS-MAINTENANCE

Richard Skidmore, formerly passenger and reservations supervisor for Trans-Canada Air Lines in Chicago, has been appointed manager of traffic and operations for Lake Central Airlines in that city.

Chris Carleton has been appointed hostess-in-charge for Continental Air Lines in Denver, replacing Shirley Nelson, who resigned to be married.

Capt. Samuel H. Miller has been promoted to operations manager, acting, of Pan American World Airways' Atlantic Division, succeeding Harry B. Fleming, who has returned to line pilot duties at Houston. Miller joined PAA in 1940 and executed several administrative assignments before becoming chief pilot in 1948. Fleming started out with PAA as a co-pilot 14 years ago.



Miller

George F. Klein has been named district passenger service manager for United Air Lines at Honolulu, succeeding Samuel T. McDermott, who transferred to New York as district passenger service manager. J. J. Farmer, who held the latter post, will assist McDermott in supervising enlarged service functions in the New York area. McDermott joined UAL in 1942, Klein in 1933.

TRAFFIC & SALES

Cliff M. Ewens has been promoted from sales manager to acting traffic and sales manager of Trans-Texas Airways, filling the vacancy created by the resignation of Paul Welch. The latter is now devoting his time toward a further expansion of Texas-Gulf Coast Distributors, a folder distributing service he organized more than two years ago and which represents 15 airlines, among other clients.

(Turn to Page 40)

Airline Commentary

By Eric Bramley



TWO ISSUES ago we told the story about Harold Harris, vice president of Pan American World Airways' Atlantic Division, and how he wrote an article in the company houseorgan on the value of passenger service. The story quoted Harris as saying that PAA's poor passenger service was driving people away. He quoted a letter from the executive secretary of a firm employing 800 people, a number of whom travel all over the world. The secretary said that he was about to start on a trip to Honolulu, Japan, Hong Kong, etc., and wasn't going to use PAA because of the poor service. Furthermore, he was advising the rest of his people to use other airlines.

We're glad to say that the story has a happy ending. Stuart Wooster, of PAA's Washington office, called upon the executive secretary ("I walked around the block three times before I went in," says Stu). He talked the gentleman into one more PAA trip. The PAA people evidently knocked themselves out, because upon his return the secretary said he had been converted from a PAA "knocker" into a booster and was withdrawing his recommendation that his organization use other airlines. All goes to prove Harold Harris' point: the satisfied passenger is the Number One salesman. And the award of the week goes to Stu Wooster for a good sales job.

We extend congratulations to an old friend of ours, Myra Black, assistant secretary of TWA, upon completing 20 years of service with the airline—the first woman to do so. All of her 20 years have been spent in Washington—she was on hand when Paul Brattain, now first vice president of Eastern Air Lines, opened the first TWA office in this city. At that time, TWA had 500 employees, compared with 13,000 at present. Myra Black, in her capable way, has often been of assistance to us, which we appreciate greatly. We hope to be around to see her get her 40-year pin.

Capital Airlines, as you may remember, decided some time ago that inasmuch as it was competing with airlines that used DC-6's against its DC-4's, it would paint up its 4's to look like 6's. This it did by painting square windows on the airplanes and some people thought they were DC-6's. Capital later bought Constellations, which leads to another story. Two CAA inspectors were standing at Washington airport, and one of them remarked, "Look, there's one of Capital's new Connies taking off." Retorted the other: "Don't gimme that stuff—they've just painted a triple tail on a DC-4!"

An amusing story which appeared recently in the Denver Post has been passed along to us. It concerns the ski trooper on Alaskan maneuvers. While on patrol in a mountain area he was frequently interrupted on his walkie-talkie by an airline pilot. The pilot, exasperated, finally said: "Get off my frequency." "Where are you?" asked the trooper. Pilot: "Flying at 5,000 feet approaching Fairbanks." Ski trooper: "I'm at 12,000 feet on Mount McKinley. Get your damn plane upstairs where it belongs."

Some of our local airline friends have suggested that we write a piece to the effect that they need a little help from the Civil Aeronautics Administration in improving the delivery of baggage to passengers at Washington National Airport. We had been intending to report, as a matter of fact, that stories have been reaching us that the service at the airport leaves much to be desired. A friend of ours (not in the airline business) told us that it took him 35 minutes to get his bag. He was a bit warm under the collar and was muttering about taking the train next time. Some time ago, we went to the airport, went out on the ramp, and walked in over the route taken by the baggage carts. Our impression was that the bottleneck was at the elevators (Washington airport is a two-level operation). There are only two of them to handle all the incoming trips. The impression evidently was correct, because the airlines tell us that they need another elevator badly. How about it, CAA?

DINKLER HOTELS

in ATLANTA
The Ansley
Joe Cracy, Manager

in BIRMINGHAM
The Tutwiler
Ira Patton, Manager

in NEW ORLEANS
The St. Charles
J. J. (Mike) O'Leary,
Vice Pres. & Mgr.

in NASHVILLE
The Andrew Jackson
Leon Womble, Manager

in MONTGOMERY
The Jefferson Davis
Homer Spiva, Manager

Executive Offices: Atlanta
Carling Dinkler, President
Carling Dinkler, Jr., V. P. & Gen. Mgr.



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NEW YORK
"HEADQUARTERS"
OF AVIATION EXECUTIVES

Hotel Lexington
LEXINGTON AVENUE AT 48th ST., N. Y. C. 17
HOME OF THE *Hawaiian Room*

(Continued from Page 39)
Robert L. Dudley has been appointed as Philippine sales manager for Northwest Airlines with headquarters in Manila, where he was formerly district sales manager.

George B. Farrow has been named Northwest Airlines sales representative for the Winnipeg area.

M. Willson Offutt, formerly district sales manager for Capital Airlines in Birmingham has been appointed manager of interline sales in the company's general offices, replacing Gilbert Paul. Jim Conner, who has been Capital's district cargo sales manager in the south, takes over the Birmingham post.

Callons D. Kennard has been named to fill the new position of manager of



Kennard

interline and agency sales for National Airlines' western region in connection with an extension of the airline's sales territory west from New Orleans to the west coast. He joined the company five years ago as a reservations agent.

Clifford T. Unbekant has been appointed district sales manager for Colonial Airlines in Philadelphia. He joined Colonial last June in the capacity of convention manager. He was at one time a member of American Airlines' sales staff.

W. G. Courtney, formerly regional traffic manager for Trans-Canada Air Lines at Bermuda, has been named district traffic and sales manager at Victoria, B. C., effective February 1. He has been with TCA since 1937.

Donald L. Urquhart has been named manager of agencies for American Airlines, succeeding Herman Theilig, who resigned to accept an executive position with a travel agency. Urquhart, formerly assistant manager of agencies, has been in commercial aviation for 21 years and joined American in 1937.

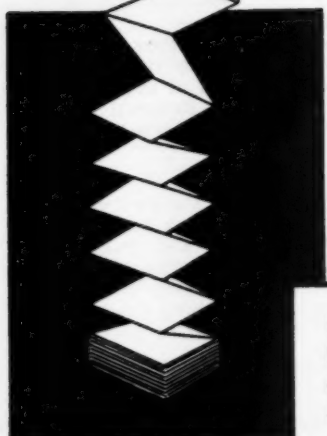
Hugh Johnston formerly with Eastern Air Lines in Charlotte, has joined Northwest Airlines' sales staff, replacing Jim Farr, who is on military leave.

Herbert J. Lyall, district sales manager for American Airlines in New York, has been re-elected director-secretary and member of the executive committee of the New York Board of Trade.

Edward G. Bergstrom, formerly a sales representative in Scandinavian Airlines System's New York office, has been assigned to the position of special sales representative in charge of new SAS office soon to be opened in Cleveland.

Clifford R. Kamprath has been named district traffic and sales manager of Continental Air Lines at Oklahoma City, succeeding Tom Parrington, resigned. Kamprath has been traffic representative in Denver.

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U. S. Domestic Airline Traffic for November, 1950

AIRLINES	REVENUE	PASSENGERS	REVENUE	PASSENGERS	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON-MAILES	EXPRESS TON-MAILES	FREIGHT TON-MAILES	TOTAL TON-MAILES	REVENUE	AVAILABLE TON-MAILES	% AVAILABLE	REVENUE	AVAILABLE TON-MAILES	% AVAILABLE	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
American	308,231	149,823,000	216,760,000	69.12	961,259	849,125	3,353,945	19,772,860	29,170,527	67.78	5,064,470	4,988,226	98.51	98.51				
Brantiff	55,543	18,503,000	33,076,000	55.94	106,934	112,179	186,681	2,175,765	4,286,756	50.76	944,833	899,157	95.34	95.34				
Capital	118,475	37,263,000	71,768,000	51.92	121,279	217,829	689,512	4,590,878	10,444,299	43.96	1,891,226	1,891,686	99.47	99.47				
Caribbean	4,728	383,000	1,076,000	35.59	743	1,935	33,477	106,626	106,626	31.40	41,312	41,312	98.41	98.41				
C & S	30,358	10,554,000	17,884,000	59.01	52,866	77,084	69,194	1,210,729	2,173,589	55.70	623,930	625,920	98.41	98.41				
Colonial	14,988	3,775,000	8,240,000	45.81	7,862	9,269	404,976	964,554	41.99	283,188	293,707	95.34	95.34					
Continental	17,571	6,294,000	14,771,000	42.61	16,967	8,471	44,472	671,968	1,538,354	43.68	523,576	488,253	93.08	93.08				
Delta	55,975	23,129,000	39,039,000	59.25	109,403	103,704	329,826	2,765,252	5,137,311	53.83	1,161,957	1,134,186	97.47	97.47				
Eastern	232,422	97,124,000	159,212,000	61.00	456,019	441,704	535,881	11,266,239	20,704,796	54.42	3,985,184	3,924,667	98.46	98.46				
Hawaiian	21,644	8,773,000	4,853,000	57.14	3,258	9,223	41,753	285,738	537,231	53.19	222,751	199,565	90.01	90.01				
Inland**	6,896	2,590,000	5,570,000	46.50	13,072	6,474	14,755	282,554	613,335	46.07	229,111	238,200	95.99	95.99				
NCA**	28,969	8,692,000	16,527,000	52.59	26,780	17,199	42,427	916,443	1,799,035	51.05	656,313	620,866	94.59	94.59				
National	37,376	22,297,000	40,220,000	55.44	55,051	26,826	344,397	2,696,170	5,398,473	49.94	978,587	850,830	86.96	86.96				
Northeast	29,095	5,531,000	10,692,000	51.73	10,199	19,608	22,602	565,249	340,246	52.87	340,246	344,426	92.40	92.40				
Northwest	45,366	29,862,000	61,918,000	48.23	193,342	185,347	638,472	3,955,383	8,132,332	48.64	1,181,450	1,179,575	95.32	95.32				
Trans Pac.	7,208	869,000	2,231,000	38.95	105	1,144	71,833	186,770	38.46	79,678	70,380	100.00	100.00					
TWA	130,644	89,965,000	146,904,000	61.24	518,201	658,946	1,481,231	11,587,136	20,053,341	57.78	3,804,975	3,938,329	93.96	93.96				
United	193,944	112,946,000	166,351,000	67.90	1,086,427	974,462	2,396,004	15,282,708	25,302,699	60.40	4,223,511	4,191,270	97.08	97.08				
Western*	43,149	15,931,000	27,127,000	58.73	75,889	38,703	52,152	1,687,497	2,918,642	57.82	672,432	672,432	94.85	94.85				
TOTALS	1,382,582	638,304,000	1,044,219,000	61.12	4,115,550	3,755,446	10,255,652	80,226,847	140,537,827	57.08	26,907,940	26,593,350	97.08	97.08				

* Operations of Western and its subsidiaries, Island, should be considered as consolidated, although reports are filed separately as shown here.
 ** Figures do not include operations of feeder segment (Route 105) recently awarded NCA by CAB in the Pacific Air Lines Investigation Case. Figures covering operations of Route 105 are carried separately on feeder airlines summary sheets.
 *** Includes air parcel post.

U. S. Feeder Airline Traffic for November, 1950

AIRLINES	REVENUE	PASSENGERS	REVENUE	PASSENGERS	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON-MAILES	EXPRESS TON-MAILES	FREIGHT TON-MAILES	TOTAL TON-MAILES	REVENUE	AVAILABLE TON-MAILES	% AVAILABLE	REVENUE	AVAILABLE TON-MAILES	% AVAILABLE	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
All American	10,713	1,503,000	4,748,000	31.66	3,104	11,544	161,674	44,569	542,714	29.79	226,131	263,164	84.73	84.73				
Bonanza	1,787	434,000	1,561,000	27.80	400	146	654	160,983	27,668	74,982	76,320	97.09	97.09					
Central	1,108	167,000	1,153,000	14.48	1,320	1,320	1,320	129,337	13,377	156,292	157,368	99.03	99.03					
Empire	3,577	674,000	2,196,000	30.69	1,968	1,666	1,666	67,982	216,723	31.37	104,596	106,402	97.66	97.66				
Frontier*	5,776	1,474,000	7,184,000	20.52	7,810	4,584	12,408	172,403	602,117	28.63	399,026	367,562	92.13	92.13				
Lake Cent.**	3,820	2,018,000	3,648,000	55.32	632	7,995	79	214,051	561,802	38.10	207,286	113,880	55.90	55.90				
NCA**	2,534	540,000	1,396,000	38.68	1,159	2,206	4,699	59,718	159,485	37.44	66,452	63,600	95.36	95.36				
Mid-West	551	71,000	551,000	12.97	1,169	1,169	1,169	60,601	11,771	137,730	149,520	92.12	92.12					
Piedmont	10,779	2,348,000	6,094,000	34.01	3,935	7,636	10,734	246,799	696,149	35.45	290,062	289,650	98.02	98.02				
Pioneer	12,580	4,139,000	8,333,000	49.67	7,852	4,113	12,744	439,824	837,326	52.53	348,886	294,268	84.47	84.47				
Robinson	5,252	913,000	2,221,000	41.11	1,663	4,192	3,114	92,407	204,831	45.11	111,061	112,888	98.47	98.47				
Southern	4,789	874,000	3,971,000	22.01	5,407	4,284	4,284	93,002	358,455	25.95	188,959	190,869	98.99	98.99				
Southwest	9,808	1,907,000	3,947,000	48.32	3,192	3,649	9,158	207,288	451,087	45.95	187,953	193,377	91.99	91.99				
Trans-Texas	6,686	1,464,000	5,516,000	26.53	4,320	3,138	6,205	160,612	551,779	29.11	262,752	262,500	99.94	99.94				
West Coast	3,999	556,000	1,783,000	31.18	458	589	2,865	54,491	158,423	34.40	84,926	92,100	91.02	91.02				
Wiggins	265	24,000	116,000	22.41	129	129	129	2,320	20,120	11.53	49,259	79,368	62.06	62.06				
Wis. Cent.	4,272	648,000	1,410,000	45.96	3,944	4,473	4,473	69,307	146,697	47.24	172,459	178,560	96.58	96.58				
TOTALS	86,256	19,754,000	55,830,000	35.38	48,462	60,215	62,300	2,110,837	5,858,629	36.01	3,028,812	2,991,356	94.45	94.45				
Helicopter Mail Service	...	...	...	1,585	...	...	...	1,585	...	...	...	...	...	...	...	...	...	...
Los Angeles	...	...	...	2,872	...	...	...	2,872	...	...	...	...	...	...	...	...	...	...

* Formerly Challenger Airlines and Monarch Air Lines. Companies have merged and are now operating under name of Frontier Airlines, Inc.
 ** Formerly Turner Airlines.
 *** Figures cover feeder segment recently awarded NCA by CAB in the Pacific Air Lines Investigation Case.

U. S. International Airline Revenues & Expenses for October, 1950

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	U. S. MAIL REVENUES	FOREIGN MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
American	\$ 336,761	\$ 278,742	\$ 8,671	\$ 5,429	\$ 427	\$ 25,431	\$ 4,282	\$ 290,616	\$ 138,702	\$ 151,914	\$ 46,145	
Brantiff	619,609	401,788	182,323	4,778	••••	20,885	7,818	522,911	243,025	279,886	96,699	
C & S	272,267	121,168	129,932	613	••••	15,956	4,052	254,157	97,244	156,943	18,110	
Colonial	116,363	107,646	5,277	985	••••	655	725	131,542	52,283	79,259	-15,179	
Eastern	55,583	46,209	6,040	••••	••••	3,007	328	72,410	35,824	36,586	-16,827	
National	115,553	98,900	6,168	••••	1,286	6,433	2,786	135,286	48,101	87,185	-19,734	
Northwest	1,319,088	584,710	477,060	16,654	6,188	175,653	5,135	14,712	1,014,754	496,683	518,071	304,334
Panagra	1,388,949	856,465	287,824	56,013	70,888	••••	29,009	2,102	1,165,478	544,355	621,123	163,471
Trans American	4,766,275	3,460,302	265,247	157,234	655,906	••••	124,335	56,167	4,767,243	2,178,431	2,588,812	-968
Latin Amer	5,602,332	3,220,295	1,638,175	254,999	356,818	••••	46,473	71,767	5,600,519	2,600,159	2,948,195	453,978
Pacific	2,277,832	1,213,374	681,698	104,068	209,139	••••	18,940	34,637	2,160,258	1,209,916	950,342	117,974
Alaska	453,722	229,212	125,934	••••	95,964	••••	1,934	••••	439,138	213,181	225,957	14,584
TWA	4,179,822	2,580,391	764,034	218,607	••••	253,775	46,409	23,841	3,418,465	1,749,640	1,668,825	761,357
United	1,000,908	300,894	42,692	••••	••••	15,246	1,692	630,256	1,256,186	811,990	444,196	-255,278
TOTALS	22,445,064	13,500,096	4,615,055	849,340	1,396,616	517,041	293,918	833,482	20,776,798	10,419,504	10,357,294	1,668,266
* U.S. mail pay accrued on basis of new clause order dated April 12, 1949, which accrual exceeds amounts payable per temporary rate order dated April 13, 1950 by \$70,324.												
** Represents company's estimate of amount which should be received in accordance with the terms of the Civil Aeronautics Act when permanent rates are established. Temporary rates in effect exceed estimate by \$337,000 for Latin American Div. and \$298,702 for Pacific Div. Estimate exceeds temporary rates in effect by \$86,132 for Atlantic Div. and \$4,809 for Alaska Div.												



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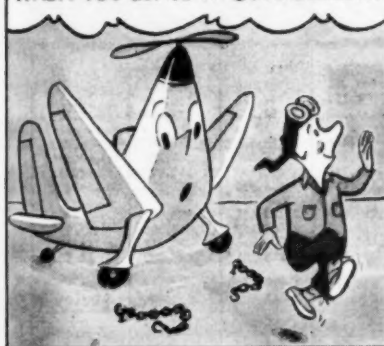


But—by Jupiter—it's the finest detergent dispersant oil for horizontally opposed engines there is!

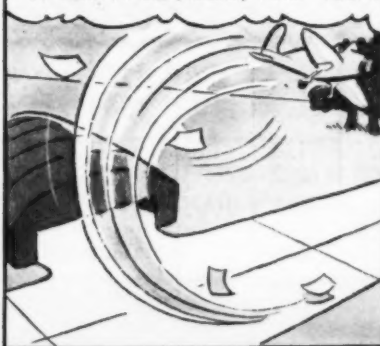
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LITTLE CONFLICT EXPECTED:

AF to Reactivate Bases on Civil Airports

By KEITH SAUNDERS

JOINT USE of airports by civil and military activities has become an active issue with the Air Force announcement that 13 air defense bases are to be opened this year, most of them at civil airports, and with indications pointing to occupancy of a good many more civil airports, in part at least, by the military during 1951 and 1952.

The airports study group (Task Force D) of the National Security Resources Board is giving this matter considerable attention and will make recommendations on the subject within a few weeks.

Few serious conflicts of civil and military aviation interests are expected to result from the reactivation of Air Force installations and the "beefing-up" of others, but close liaison will have to be maintained and a certain amount of give-and-take practiced as between the military, the CAA and airport management.

Bases to Be Opened

The AF installations already earmarked for opening this year will be located at:

- Amarillo, Texas.
- Burlington, Vt.

- Camp Wolters, Mineral Wells, Texas.
- Duluth, Minn.
- Geiger Field, Spokane, Wash.
- McGhee-Tyson Airport, Knoxville, Tenn.
- Niagara Falls (N.Y.) Municipal.
- Oxnard, Calif.
- Truax Field, Madison, Wisc.
- Big Springs, Texas.
- Paine Field, Everett, Wash.
- Lockbourne Air Base, Columbus, Ohio.
- Suffolk County Airport, Westhampton, N. Y.

All of these except Camp Wolters and Lockbourne are civil commercial airports, most of them municipal fields. The Air Force did not state what type of activity would be carried out at each of the installations, but it was known that most of the bases would be tied in with the Continental Air Command's air defense network now being developed and expanded.

Fighter wings will be installed on a number of the fields, and other types of tactical units at others. Increased activities for reserve air units will be a part of the program.

Expansion at Knoxville

As an example of the stepped-up defense program, the Air Force will

spend an estimated \$5,500,000 at Knoxville's McGhee-Tyson (Municipal) Airport. The expansion includes planes for hangars, shops and administrative offices, plus another 5,000 feet or more of runways. The AF is seeking to lease an additional 300 acres of land from the city and its program, together with the \$800,000 expansion program currently under way at the airport, will nearly double the size of McGhee-Tyson.

Instead of the six planes of an Aircraft Warning Squadron now based there, some 50 or more military planes may be stationed on the field before the end of this year. Similar expansions may take place at other airports, although the Knoxville installation may be a little exceptional because of its proximity to the vital Oak Ridge atomic facilities.

The decision to open the above-named 13 bases during 1951 was predicated on a 68-group Air Force, but the Air Force has since raised its sights to 84 groups within 18 months and Under Secretary John McCone foresees exceeding that goal within two years.

This means, of course, that even more installations will be needed, and Air Force and NSRB planners already are making plans for the activation or reactivation of military



MCA Expansion—Above drawing shows Mid-Continent Airlines' present hangar and shop building at Wold-Chamberlain Field, Minneapolis-St. Paul, together with a proposed \$375,000 expansion due to be completed in mid-1951.

The new building, which will house a hangar, service shops and offices, is the section with the curved roof. New hangar will be of prefabricated steel and sheet aluminum, while offices and shops will be of reinforced brick and mortar. Structure will have an overall width of 180 feet and depth of 160 feet.

AIRPORT NEWS DIGEST

Federal Airport Act Amendments: The 81st Congress batted 100% on CAA-sponsored airport legislation, according to a tabulation compiled by the agency.

It passed all 10 of the amendments to the Federal Airport Act which the Civil Aeronautics Administration had sponsored or supported, although it came close to missing out on one of the more important ones.

The latter—S. 1281—which repealed Section 10 (d) of the Act, thereby eliminating the provision limiting the Federal participation in land acquisition costs to 25%, finally was passed by the House on January 2, only an hour or so before the 81st Congress passed into history. It had previously passed the Senate.

The amendment permits the government to participate generally up to 50% in airport land acquisition costs, and up to 62.5% in public land states. CAA had wanted the 25% limit removed because it (1) resulted in higher costs to the government in its assistance to the sponsor in putting the land into shape, and (2) resulted in selection of sites undesirably distant from the cities served.

CAA has no legislation pertaining to airports to propose to the 82d Congress.

TERMINAL BUILDINGS

- **Airport commission at Baton Rouge** rejected as too high a lone bid for \$98,800 to finish the new administration building at Harding Field. Bid was \$40,000 in excess of available funds.
- **Oklahoma City's right to grant exclusive contract** for parking facilities at the municipal airport has been upheld for a second time by a court of appeals.
- **Chattanooga city commission** has approved construction of a new 120 x 120 foot hangar at Lovell Field.
- **Bids for new hangar to cost about \$100,000** at Tulakes Airport, Oklahoma City, were too high and are being revised before being readvertised.

HANGARS & SHOPS

- **Four large hangars at Bridgeport** (Conn.) municipal airport have been leased to Mallard Industries, Inc., of Teterboro, N. J., for storing, repairing, selling and chartering aircraft.
- **Bids for a new hangar at Tulakes Airport**, Oklahoma City, were over the engineers' estimates and will be revised and readvertised soon. Hangar will cost about \$100,000.

LIGHTING

- **Runway lighting system at Lewiston-Auburn** (Me.) Municipal Airport is being surveyed by lighting engineers as basis for planning a new system.

MISCELLANEOUS

- **New airport commission** created recently by city of Little Rock, Ark., took over full control of Adams Field on January 1.
- **A bill to enable establishment of a Greater Kansas City** airports authority has been drafted for possible submission to Kansas and Missouri state legislatures in near future.
- **Greater Peoria Airport Authority** has authorized erection of a temporary metal freight terminal at the municipal airport.
- **A Walter firefighting and aircraft rescue unit** costing \$39,369 has been ordered for Logan International Airport at Boston.
- **A \$750,000 bond issue** authorization to assist in airport improvement throughout the state may be suggested to the Maine legislature.
- **A bill which would have the state issue \$250,000** in bonds to buy and improve Barnes Airport at Westfield has been introduced in the Massachusetts legislature.
- **Saginaw (Mich.) Municipal Airport** has been ordered sold, and the city will now participate more extensively in development of new Tri-City Airport serving Saginaw, Bay City and Midland.

—Keith Saunders

air units at other civil airports around the country. These will be announced as plans are completed.

Views Change

All of the above gives point to the quotation attributed to an airport manager that "the reserves will always be with us, and we'd might as well learn to live with them."

This sentiment, which is shared by most airport managers today, reflects a marked change from a year ago, when there was strong sentiment in the industry for separation of civil and military flying to the greatest extent practicable.

Even before the subject had become somewhat academic as a result of world conditions, it had cooled off somewhat as a result of studies made by the industry-government Airport Use Committee, which had observed the traffic situation at a number of leading airports and had concluded that many of the objections were largely unwarranted.

For example, after its inspection of Lambert-St. Louis Municipal Airport, this committee had stated that "there is no inherent hazard in handling a mixture of all types of civil and military aircraft, including jet aircraft, provided proper traffic control procedures are established and are followed by all aircraft."

One suggested procedure, observed at St. Louis, is for the airport management and the military to reach an agreement whereby a maximum will be established and adhered to for the number of military planes to be admitted to the traffic pattern at any given time, that the consecutive takeoffs by military aircraft be limited normally to a small number, such as six, and that civil and military operations be cleared with each other so that arrivals and departures will be staggered.

Economic Angle

Another angle to be considered is the one of economics. Military air units not only contribute substantial sums of cash to the civil airports from which they operate, but they also in many, if not most, instances furnish and operate crash and maintenance equipment and thereby spare airport managements from the problem of budgeting sufficient funds to provide like services and equipment.

Without the direct and indirect financial assistance derived by reason of military use of their airports, a good many airports would incur deficits which it would be virtually impossible for the airlines and other users to assume and which it would yet be difficult if not impossible for the municipality's budget to absorb.

AIRPORTS

As to safety considerations, Lambert-St. Louis furnishes a perhaps not untypical example. This airport currently averages over 20,000 operations (landings and takeoffs) a month, which includes every type of traffic—air carrier, light aircraft, Navy and National Guard units, experimental jets and experimental helicopters.

Yet, according to David Leigh, manager, there has been no fatal accident resulting from traffic congestion in the recent history of the airport, and in the past three years no official complaints based on traffic congestion have been received from the six scheduled airlines using the field.

Civil and military traffic can be mixed safely and with certain advantages to all concerned.

WNA Amends Fees, Concessions Setup

The Civil Aeronautics Administration, which operates Washington National Airport, has made several important changes in concession arrangements and airport use charges that will affect every user of the airport.

Major changes, as announced by Bennett Griffin, director of the airport were:

- Splitting of the food concessions, formerly handled exclusively by Air Terminal Services.
- Purchase of the airport fueling system from Gulf Oil Corp., which had long held an exclusive gasoline contract at the field, and lease of the system to an independent contractor under a "controlled cost-plus" contract.
- Placing landing charges for the scheduled air carriers on a basis of a fixed charge for each revenue trip arrival of a certain type of aircraft, with discounts for high-volume operators.

When the airport was nearing completion, the CAA ran out of funds and was unable to build a fuel storage and distribution system. Gulf agreed to build the system, which included a dock, underground storage tanks, piping and service pits. In return, Gulf was given a 10-year lease for operation of the fuel distributing system, for which it was to pay \$150,000 a year. This charge, presumably, had to be passed on to the consumers.

Double Standard

The airlines signed waivers agreeing to this exclusive contract for five years, although reluctant about it

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AIRPORTS

from the standpoint of principle. CAA found itself in a position, after it started working up the Federal Airport Program, of having granted an exclusive fuel contract at the one airport it operates while holding out against exclusive franchises at all other Federally-aided airports.

After five years, Gulf was persuaded to have the terms of its lease changed to a modified-exclusive basis, under which airlines could buy gasoline off the airport and have it trucked to the apron. Nevertheless, Washington National became a high-cost station for the airlines, since the \$150,000 Gulf paid for its concession had to be reflected in some manner in the price it charged for its product there. Result was that some of the airlines bought a minimum of gasoline at Washington, filling their tanks at Baltimore or some other station at less cost.

After several years of negotiation, Gulf was persuaded to drop its franchise before the 10-year lease expired, to sell its system to CAA, and to bid for the airlines' business on a competitive basis with other petroleum companies.

CAA Buys System

CAA paid Gulf a depreciated price of \$375,000 for the fueling system and then leased it to an experienced operator, Allied Aviation Fueling, Inc., on a "controlled cost-plus" basis.

Allied will operate and maintain the system and will amortize its cost over a 10-year period, after which the fully depreciated system will belong to CAA. Allied will pay \$40,000 a year for its lease and concession and will prorate on the basis of use of the operation, maintenance and amortization costs, plus a reasonable management fee.

The change will have several effects:

1. It enables the airlines serving Washington to negotiate contracts with any supplier they choose, subject to restrictions of the Petroleum Administration for Defense on solicitation of new bulk fuel accounts.
2. It will in all probability reduce fuel costs at the airport and boost the airport's aviation gasoline sales volume.
3. It establishes the co-mingling of fuel at a major commercial airport, a move that the petroleum companies have long opposed.

Landing Fees

In giving up the fee Gulf had paid for its franchise, the airport management had to find additional revenue elsewhere, and since the landing fees paid by the scheduled airlines

AMERICAN AVIATION

AIRPORTS

at Washington had been lower than at most large airports it was decided to make an upward revision in these charges.

Old fees for the airlines had been \$75 per month for the first four daily scheduled flights and \$25 for each additional daily flight. After negotiation, the airlines agreed to a new system under which landing fees would be set, according to plane type, at so much per revenue trip arrival with a discount for high-volume operators.

New landing fees range from \$2.00 revenue trip arrival for DC-3's and \$3.50 for Convair Liners to \$5.50 for DC-4's, \$7.00 for DC-6's and Constellations and \$8.50 for Stratocruisers.

In addition, the airlines pay a 65¢ apron service charge for each revenue trip arrival, which covers use of the service pits.

The new schedule will increase landing fees at Washington by about 200%.

Food Concessions

Some airport tenants had objected to the fact that all the food concessions at the airport had been held for 10 years by a single operator on an exclusive basis. Some airlines, in fact, had been buying in-flight meals from the Hot Shoppe at Alexandria and having them trucked to the airport.

After amicable negotiation, Air Terminal Services agreed to give up the in-flight meals concession and the three cafeterias it had been operating on the airport. It retained control of the Terrace Room Restaurant, the coffee shop, the soda fountain and the news stand in the passenger terminal. Hot Shoppes took over operation of the cafeterias and the in-flight meals kitchen, the latter estimated to be a \$750,000-a-year business.

CAA AIRPORT GRANTS

For the two weeks ended December 29, the Civil Aeronautics Administration made Federal-aid airport grant offers totaling \$82,056 to seven communities, as follows, with airport classes in parentheses:

Arizona: Ernest A. Love Municipal, Prescott (4), \$10,500.
California: Fort Bidwell Airport (1), \$600; Ontario International (5), \$2,707.
Kansas: New Garden City Mun. (5), \$3,900; Wichita Mun. (6), \$15,400.
Nebraska: Columbus Mun. (2), \$47,500.
Oklahoma: West Woodward Airport (4), \$1,499.

These boosted to 1,626 the number of grant offers made under the Federal Airport Program and raised to \$13,653,083 the amount of Federal funds involved.

JANUARY 22, 1951

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LOW-INVESTMENT SIDELINE:

Aerial Photos Offer Added Income for Local Operators

By BARBARA J. WARD

WITH 1,311 of the 4,466 U. S. fixed base operators offering aerial photography, it is becoming increasingly recognized as a good aviation sideline.

Bob Ashburn, manager of Hybla Valley Airport, Alexandria, Va., is a typical operator who got started in aerial photography without exactly intending to. A phone call came in asking if he could take an aerial photograph of a business establishment. Ashburn agreed, hung up and then started worrying about where he was going to get an aerial camera.

After making calls to all the photographers in town and failing to locate one, a friend from California walked in with a war surplus K-25 aerial camera under his arm. Ashburn paid \$75 for the camera and a film developing kit, has had it less than a year and it has already paid for itself.

With it, he has done a job for Standard Oil Co., taking a picture from 300 ft. of a service station and the community it serves. Fruit Growers Express has had him take pictures of their inventory of cars and new buildings and he has photographed real estate developments to show the work progress. The camera has been used from 8,000 ft. down to 50 ft. above the ground and gives good results.

Local Business

Possibilities for aerial photographs are almost unlimited. One pilot in Michigan spent an afternoon flying around a small resort lake taking an aerial shot of every cottage on it. He sold 30 and cleared a good profit.

One suggestion is to fly down a country road, take pictures of all the farms along it, have them enlarged to eight-by-ten-inch size, which costs about 50c each, and offer them for sale to the farmers. In addition, newspapers can use aerial shots of college football games, local fires, and construction pictures of dams, new highway intersections, and areas under zoning consideration.

Factory owners often will buy aerial shots of their installations, real estate owners can use photographs to help plot and sell property, and the municipality might be interested

in an aerial study of traffic congestion.

To bring the matter closer to the airport, an aerial view of the field, with the traffic pattern and wind T location drawn in, could be hung on the office wall for the benefit of new flying students.

Ordinary Camera Usable

An aerial camera is not necessary. Any camera with a shutter speed of 1/100 of a second or higher can be used. However, since the pictures will have to be enlarged, the larger the negative the better as flaws are magnified in the process. It is possible to get good aerial shots with even a small 35-mm. camera, if the camera is carefully focused and the darkroom work is meticulous.

An all-metal camera has the advantage that it can be held out the window of the plane in the air stream to get a better view. This cannot be done with a bellows camera such as the Speed Graphic without risk of damaging the bellows, unless a protective shield is added.

Probably one of the best planes to be used for taking aerial snapshots is the old J-3 Cub trainer. The top half of the door can be folded down, or the door removed entirely before takeoff. Because of the wing strut, pictures will have to be taken at an angle about 45° ahead or to the rear, with the rear view offering the wider clear area.

Aerial photographers say that, if possible, pictures should be taken from a level-flight position so that the photographer has a good steady platform from which to work. It takes two people—one to fly the plane and one to handle the camera—and a series of head or voice signals should be worked out.

Slow Flying Needed

Since vibration will affect the picture, the plane should be throttled back as far as possible. The plane should be slowed down to just above stalling to reduce the relative movement between the plane and the ground. From high altitudes, this will not be so important, but it is critical at altitudes of 500 ft. and



POSTCARD PHOTOGRAPH to advertise Renton Airport and illustrate the traffic pattern for transient pilots was originated by E. N. Stokes, manager of Renton Airport, Seattle, Wash. The picture was taken by Pacific Aerial Surveys as part of a county project and negative was purchased for \$3.50. After drawing in traffic pattern and wind T with white ink, the picture was reduced in size and printed on photo postcard paper at 5c per copy by a local photography shop. Operators sell them over the counter, use them for notes and give them to customers.

below and is a good precaution at all times.

It is possible to take photographs from a low-wing monoplane, but in order to keep the wing out of the picture, most such aircraft have to be banked steeply. The ensuing rate of turn gives the photographer only a few seconds in which to "frame" the picture in the camera and snap it. And, in such a turn, the airspeed would have to be held well above stalling.

One pilot in Michigan has had a hole cut in the bottom of the fuselage of his Beech Bonanza and says he gets good pictures. And such aircraft as the Stinson Reliant, and the twin-engined Beech AT-11 and Cessna UC-78 have been modified in this way by aerial photography companies.

These companies, of which there are about ten large ones in the United States, use aerial cameras which cost thousands of dollars, are automatically tripped at split-second intervals,

have as many as nine lenses taking pictures simultaneously, and are used only under perfect flight conditions with established elevation control points. But geographical survey is only one phase of aerial photography and the equipment needed to take a still photograph can be kept simple.

Accessories

Only two camera accessories, totaling about \$10 in cost, are needed. First, a lens shade is desirable to extend out beyond the camera lens to protect it from reflections off the aircraft and "side lights" from beams of light deflected in the atmosphere.

Second, a yellow filter will be needed on all days except when the visibility is unlimited. The filter cuts out the bluish haze which is almost always in the air as a result of minute water droplets and particles of dust, and it is used to darken the sky in photographs to bring out cloud effects. Any local photography store will carry these accessories and can provide the Super XX film which is recommended for aerial photographs.

Although the difference may not be perceptible, light is much more intense at high noon than in the early morning or late afternoon. A reliable light meter costs about \$20 and would insure proper settings under all light conditions.

Clouds Impair Prints

It is a waste of film to try to take aerial photographs on anything other than a near-perfect day. Although the sun may be shining through a broken ceiling, cloud shadows leave a splotchy effect on the print. And rough air makes it almost impossible to get a good picture, unless one can time the bumps.

To take the picture, the plane should be maneuvered into position where the camera will be facing away from the sun, slowed down and held in level flight. The photographer should brace the camera steady by holding his elbows tight against his sides, being careful not to lean against the plane or allow the camera to touch it and pick up vibration. In this instance, his body is the shock absorber.

For low-level photography, pilots should obtain an altitude waiver of the local CAA agent.

For those who want additional information, the following two books contain chapters on the aerial photography: "Leica Manual" and "Graphic Graflex Photography," by Morgan & Lester Publishers, New York, N. Y.

THE Washington View



By Barbara Ward

THE EXTENT to which aerial crop dusting and spraying can continue during a national emergency will have to be decided by CAA and the Air Coordinating Committee. But before the decision is made on the basis of food production alone, required reading should be page 28 of the new book, "Health Services and Special Weapons Defense," by the Civil Defense Administration:

"Any insect pests or plant diseases that are present in other parts of the world but have not yet reached this continent constitute a threat to America's food supply. The insect pests and plant diseases now present in the U. S. annually destroy food and fiber crops worth billions of dollars. Hundreds of organisms of this kind have never reached the Western Hemisphere. During the last 40 or 50 years a number of very serious foreign pests have become established in this country. Some, such as the Japanese beetle, European corn borer, Mediterranean fruit fly, and citrus canker, either cause extensive losses or are very expensive to control or eradicate.

"Deliberate attempts to introduce new pests and diseases into this country might be either open or secret. Open efforts would require some means, such as planes, of transporting the new pests and diseases to this country and to the crops to be attacked. Secret introduction of pests and diseases to our croplands are more dangerous and more likely than open attacks, and might be used at any time, including a period in advance of open hostilities."

According to behind-the-scenes information, an enlarged version of the defunct civilian airman training bill of 1950 to authorize a CPT-type civilian pilot and aviation technician training will be introduced in Congress about the end of this month. This bill is being re-written and may provide for incorporation of a permanent provision for such training in the Civil Aeronautics Act. CAA could then review the country's civilian pilot needs each year and would have a legal basis for requesting training appropriations.

Operators are getting together increasingly to work in state aviation trades associations and with the National Aviation Trades Association, according to Charles A. Parker, NATA executive director in Washington. The Connecticut chapter is re-joining NATA in 1951, the Colorado chapter plans to come in, and Oregon is considering affiliating with the national organization.

Montana Aviation Trades Assn. is one of the strongest in the country, with almost every operator in the state a member. At one point last year they had 100% membership, believed to be the first such record.

California Aviation Trade Assn. has printed a new bulletin for distribution to operators in the state, "California Aviation Trades Association and What It Means to You." Larry Hunt, new president, says they have also drawn up a new membership code which in general stands for fair trade practices and sound treatment of all their customers.

In Maryland, John K. Hinson of Hinson Aero, Inc., Baltimore, has just been appointed by the governor to serve on the state aviation commission.

The following note came in from Bob Halpin of Bethany Airport, Conn., concerning the USAF basic flight school at Greenville, Miss., where 450 cadets will be trained on T-6 aircraft by a civilian operator. "My guess on the Greenville, Miss., AF cadet training is \$75 per hour. Any CAA approved school could give 200 hours training for one-fifth of that. Not in AT-6's but why use AT-6's?"



Cross-Country

----- WITH LOCAL OPERATORS -----

By Page Shamburger

FLORIDA—Walt Jackson of Jacksonville time organizing and promoting a stream of Pipers into Florida 100,000 air miles were flown by Piper owners with the Flying Service in Melbourne is one operator you can depend on being on the field 24 hours a day . . . he lives in a trailer right behind the hangar. Walt says most of his revenue comes from the transient trade, and he is really doing an A-1 job of servicing, including making hotel reservations for you, giving transportation, and showing you the best fishing grounds. He has a beach wagon with a Ford body, Chevy transmission and wheels like you've never seen before. Monocoupe's last approved plane belongs to Walt, . . . a clipped wing, which will surely be in the air shows before long.

Broward County Airport in Fort Lauderdale boasts two operators and a wide-awake manager in **Lee Wagener**. Lee's an ex-Navy pilot and works hard at keeping the city of Fort Lauderdale happy with airport property revenue. He has a big job, too, with all the Naval Buildings on the field, and is managing to make it a paying proposition.

Floridale and Granere Aviation are the two operators with Granere specializing in transients and private plane owners. **Jimmie Granere** and his wife are going out of their way to make the private plane owners glad they own airplanes.

Coming down the east coast of Florida was a revelation . . . airplanes of every kind, size, and color at every altitude were homing to the Miami Air Show. Estimates included around 300 light planes at Opa Locka and about 250 at Sunny South. Literally every type plane from Aeronca bathtubs to Connies came from all over the nation.

Piper Aircraft Corp., the only manufacturer with a complete new plane demonstration, spent a great deal of



Radio and TV's Arthur Godfrey, longtime pilot who served as honorary chairman of the Miami Air Show, chatting with Betty Skelton, noted woman aerobatic flier.

Des Moines group winning with eight planes flying 24,400 passenger miles. The original planes to be brought to Miami from Lock Haven were caught in a flood, so more had to be constructed for the demonstration. Though this slowed down some of the plans made by the **Pipers**, they were able to get the letters out asking each owner to come to Florida. Estimates of around 200 owners did come and all were given yellow caps and asked to wear blue shirts. Whatta sight.

The **Super Cub** was demonstrated as a sprayer, as a duster, and as an alright plane. It is amazing the short distance the little plane needs to take off and land.

Jean Voltz was soloed by Piper in the new **Tri-Pacer** in about seven hours just before the show. All of this instruction was done in a 24-hour period and could have been out to one day except for 30-mile winds the first afternoon.

Little Caro Bayley, a member of the 99's, broke the altitude record in a Piper with an altitude of over 30,000 feet. She also did beautiful precision flying in the competition. Came in third.

All of the acrobatic pilots did a fine job entertaining the crowd with the best in all possible forms of precision flying. **Rod Jocelyn**, a grinning likeable fellow, took the title for the second year. **Bevo Howard**, in his Bucker-Jungmeiser, was sponsored by one of the leading oil companies did a bang-up job with this exhibition flying.

Kip Moon of Brunswick, Ohio, is a recent comer to the shows but did a grand job exhibiting a 33-year-old

French Newport. **Hans Groenhoff** really will go to all ends to get those remarkable photographs. He stood on the top of Em Avery's plane and was carried all over the airport.

The executive lightplane race was the most interesting race with two Bonanzas and two Navions competing on a ten-mile course. Both first and second places went to Bonanzas with **George Young** as the winner and **Woody Edmonson** coming in second. Third place went to **Luther Johnson** of midget racing fame, in a 260 Navion.

Though there was the usual rat-race confusion as in all air shows, consensus says the show was a tremendous success with the **Florida Air Pilots Assn.** really digging in. **Dave Skelton**, of Tampa, was one of the many to say the atmosphere this year was friendlier than ever, but the military flying was missed. The great lack of sponsorship was a disappointing factor. All in all, however, here's to more and bigger Miami Air Shows in the future.

St. Augustine's tremendous airport is usable, and strange thing . . . the gas man is paid by the local Moose Club. The Moose lease the building as their club-house and keep a service man there for the convenience of pilots.

Jerry Huntley and his wife are operators of the **New Smyrna Beach Airport** in Florida and strangely, neither one of them fly. They hope to get an operator in the immediate future, but make the airport so pleasant, the service so good, I hope another can do as well. On this airport is a beautiful sight to transients—cabins next to T hangars. The cabins are very nice and the restaurant, also on the field, is excellent. Neither storage or tie-down fees are charged if you take advantage of any other facilities or services. There is also a golf driving range with a pro available and a fishing camp just a little distance. What more could you ask?

GEORGIA—Aviation Supplies is a G50-50 operation between hand tools and aviation supplies. Atlanta Municipal can also boast of **Helm Flying Service**, **Johnson Flying Service**, **Georgia Aircraft**, **Galloway Air Service**, and **Aero Corp.**, insurance agencies and radio repair shops.

Eddie Beardon at **Athens Municipal** has three full-time jobs. He's chief instructor for the vocational school located on the airport, manager and operator. Doing a good job of all three, too. He lives right on the field as do the **Grady Thrashers**. Seems Grady is piloting for a contractor now, and out of the airshow biz.



Winners in the national aerobatics contest held at Miami Air Show (l. to r.): Marion Cole, second place; Caro Bayley, third, and Rodney Jocelyn, who placed first for the second consecutive year.

En Route

(Continued from Page 54)

Jones and Jim Doolittle. In Chile he built an airplane assembly plant for Curtiss, sold a lot of planes, trained students, and is highly regarded by the Chilenos. He likes it there, never intends to return to the U. S. Back in the early days he was one of the founders of the New York Aerial Police. He was a captain and Casey Jones was a lieutenant.

In Barranquilla, Colombia, I ran across **Charlie Peebles**, who had logged 27,440 flying hours when I saw him. He flew 21 years along with **Ham Lee** on United, flying mostly New York-Chicago. He organized the Colombian airline LANSA, then went with AVIANCA for five years, and was buying and selling airplanes when I saw him. Owns his own Bellanca. He began flying in 1916, was one of the early air mail pilots, and would have succeeded Ham Lee as No. 1 pilot for United if he had remained with the airline.

* * *

Whatzit. Best definition to date of Constellation on the ground: a praying mantis.

* * *

Haircuts. Sooner or later in traveling one has to have a haircut outside the U. S. As long as I have any hair left (and European barbers have done their best to take all of it away) I've decided to continue to experiment with barbers in foreign lands. So now, instead of rushing to get a haircut before departing on a trip, I wait until the trip is underway. In the past few years at least half of my haircuts have been outside the U. S.

One of the most difficult things to get outside the U. S. is a really good shampoo. One reason is the poorer quality of soaps used abroad. Right after the war hot water was a rarity in some places. I remember **Copenhagen**, especially, where the barber had to heat up a pan of water for the occasion since hot water was not to be found anywhere in the country including the best hotels.

In most countries abroad the customer slips on a smock, putting his hands through a dressing gown in reverse—something like a surgeon's outfit. Sometimes the barber's chair is very hard and straight, not susceptible to being lowered and raised, or to lean back. Very often the lights in the barber shop are poor. There's no doubt that barbering has become elevated to a high position of comfort and specialization only in the U. S.

I've had haircuts in just about every capital of Europe and in several countries in South America, and in such places as **Shanghai** (one of the best, as I recall). In the past year I can remember especially the Royal Aero Club and the Savoy in **London**, the Avila Hotel in **Caracas**, Venezuela, where the barber used a straight razor instead of scissors, and the Plaza Hotel in **Buenos Aires** where the barber shop was far below the standard of the hotel itself.

But one thing is common to all shops the world over—sweet smelling tonics with weird names, oily and sticky stuff to keep the hair down, and poor barbers.

WINGS OF YESTERDAY

25 Years Ago

Daniel Guggenheim announced January 17, 1926, in a letter to Secretary of Commerce Hoover, that he had set aside \$500,000 and stood ready to supply an additional \$2,000,000 as the Daniel Guggenheim Fund for the Promotion of Aeronautics, to foster the science of aircraft until air freight and passenger services could be placed on a self-supporting basis. Mr. Guggenheim predicted that flying would establish itself as an independent industry within 10 years and at the end of this development period he intended that the fund should terminate its existence.

10 Years Ago

(In AMERICAN AVIATION)

Civil Aeronautics Administration was building three powerful 20-kilowatt radio stations Sayville, L. I., New Orleans and San Francisco to link domestic airway and teletype systems with Europe, Africa, South America, Alaska and the Philippines.

The Army Air Corps had a \$233 million building program under way which would eventually provide 107 air bases.

U. S. aircraft manufacturers delivered nearly 1,900 aircraft to Great Britain and Canada in 1940, an increase of 600% over the previous year.

LETTERS

Baggage Problems

To the Editor:

I have read with a great interest your editorial in the December 25 issue entitled "Project for 1951."

You may remember that I delivered a paper before the American Society of Mechanical Engineers at their meeting last April. In that paper I mentioned that the baggage problem was very serious—not only from a time standpoint, as emphasized in your editorial, but also from a cost to the carrier standpoint. I tried to get across the idea that part of the problem must be solved in the design of aircraft.

Sometimes it takes a lot of shouting and yelling to create sufficient interest in the problem to overcome natural inertia. Perhaps you can do something through your publication to keep this project in front of the industry.

ROBERT L. TURNER
Vice President-Sales
Northeast Airlines, Inc.

First Ski-Equipped DC-3

To the Editor:

We note that in *American Aviation* of Jan. 8, page 4, it was stated that the Transocean Air Lines DC-3 in use on its Point Barrow Navy contract operation is the "first ski-equipped DC-3 type plane to receive commercial license."

In order to keep the record straight we should like to point out that it was Alaska Airlines, Inc., and not Transocean which first operated DC-3's with skis. Alaska Airlines' DC-3 #N-13010M was, according to the

CAA, the first DC-3 to be flown on skis and it was certificated March 25, 1947, by the CAA for ski operation. Moreover, Alaska Airlines has always pioneered the development of ski operation, and long prior to 1940 operated its transport aircraft including tri-motored Stinsons on skis, licensed by the CAA. Consequently, it will become Transocean, a newcomer to Arctic flying, to hold itself out as the first carrier to operate large transport aircraft with ski equipment.

RAYMOND W. MARSHALL
Chairman of the Board
Alaska Airlines, Inc.

U. S. Mobilization

To the Editor:

I think that the editorial "The Long Hard Road" which appeared in your December 25 issue is the finest article of its kind I have ever read on this subject.

WILLIAM H. BALL
Assistant to the President
Hardman Tool & Engineering Co.

Hanger Fires

To the Editor:

In connection with the article (*American Aviation*, Nov. 27) on "How Airport Fires Can Be Prevented," you state as the title of the first picture—"only automatic fire protection would have saved the hangar." This statement, while undoubtedly true for the hangar illustrated, implies that the same would be true for any hangar. The experience of the Wright Field fire and the Australian hangar in which the plane crashed through the roof and burned indicate that the statement should be modified for concrete hangars to "automatic fire protection would have saved the contents of the hangar," though, if the hangar was not damaged and the flames were confined by fire walls, the removal of the rolling contents might be accomplished without a sprinkler system.

In this respect, it would be interesting to see your articles extended to include a tabulation of all major fires in timber, steel, and concrete hangars with an evaluation of the magnitude, cause and cost of each.

BOYD G. ANDERSON
Ammann & Whitney
Consulting Engineers

BOOKS

PLANNING IN PRACTICE, by Ely Devons, published by the Cambridge University Press, 228 pages, \$3.

This book is one of the few available which outlines the arguments and discussions of different planning methods for aircraft production from the practical experience of the British wartime Ministry of Aircraft Production. Coming at a time of U. S. industry mobilization it is, therefore, a timely and factual account of what was, in Britain, the largest single munition industry. The author explains that it is not a history of the M.A.P. but is confined to an explanation of its planning activities as a system and each of the chapters is an essay analyzing different aspects of the work which was undertaken by the Ministry during the war.

The place of the M.A.P. in overall planning is the initial chapter and one which U. S. industry and the administration in Washington will find is of particular interest. Nearly all the illustrations of how component and assembly supplies were spaced will be of little value to the U. S. where the rates of progress are different but the underlying thoughts and the judgments upon which broader policies are based, are more directly applicable to any

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UNITED AIR LINES

Government organization for aircraft procurement. Aircraft and engine production are subjects treated separately at first and integrated at the end of the book in a wider presentation of the co-ordinated methods which have been picked out by the author as typical of the British approach to production.

This is, therefore, a book which will be of value as helping aviation interests in the U. S. to understand one method of quantity aircraft construction and, although there are few direct lessons in the book which are of value today to the U. S., the thoughts which this book will provoke may do much to suggest new ways of cutting corners in the present build-up of U. S. air weapons.

—R. G. W.

CAA Specification Changes

Luscombe 8 aircraft are approved with Call S2, S6 or S7 skis installed according to Call Aircraft Co. instructions, by Specification A-694.

Aeronca 7AC aircraft are approved for equipment with McCauley 1B90CM propeller and Sensenich 76AK-2 metal propeller, by Specification A-759.

Cessna 195, 190 and 195A aircraft are approved with two ¾-inch tapered spring-type landing gear according to Cessna drawing 0341109, by Specification A-790.

OBITUARY

Prof. Emile Allard

Professor Emile Allard, pioneer Belgian aviator and a director of SABENA Belgian Airlines, died in Belgium at the age of 67. One of the founders of Societe Nationale pour l'Etude de la Transportation Aerienne, SABENA predecessor company, in 1919, he was instrumental in establishing airline service in the Belgian Congo and later linked SABENA-Europe with SABENA-Africa. He was chief of Belgium's technical aviation services in World War I, and had been identified with virtually every important aviation development in that country for the past 40 years.

Capt. J. W. Johannpeter

Capt. Julius W. (Joe) Johannpeter, veteran American Airlines pilot, died at his home in Tulsa at the age of 49. He joined Robertson Aircraft Co., an AA predecessor company, in 1928, to fly the mail on CAM 2, Chicago to St. Louis.

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IN FLIGHT

A PAGE FOR ALL PILOTS

Pilot Aids Snow Plows

Capt. William H. Riley, regional chief pilot for Capital Airlines at Pittsburgh, is credited with an ingenious idea which can be helpful to lots of airports in the snow belt.

Scraper crews trying to reopen the Allegheny County Airport to traffic during a recent snowstorm had to give up the effort because blinding snow and mid-day smog prevented them from locating the center of the instrument runway, which was under nine inches of snow at the time.

Taxiing a plane out onto the field "on instruments," Captain Riley watched the localizer needle on the instrument panel until he received an indication that the plane was lined up with the center of the strip. Then he slowly taxied the length of the runway, keeping the localizer needle centered. It then became a simple matter for the snow plow driver to follow the plane's wheel tracks and thus plow a straight path down the runway.

High-Speed Interceptions

Some idea of the fighter pilot's problems in high speed aircraft was given by Dr. William Bollay, technical director of North American Aviation's Aero-physics Laboratory, during his Wright Brothers Lecture in December:

"Consider for example the problem of shooting down a 600-mph. bomber with an interceptor capable of a speed of 1,000 mph. The time available for interception is likely to be so short that the interceptor must be vectored by ground control into the approximate attack position. If the attack proceeds from the front, the relative speed between the two aircraft is 1,600 mph. If the interceptor pilot first sees the bomber five miles away, he has eleven seconds to identify his target, line up his airplane, fire his guns, and get out of the way. The likelihood of scoring a hit under conditions of such a high closing rate is very low.

"If he decides to go around to make an approach from the rear, even if he turns at 4G normal acceleration it will require a six-mile diameter circle to turn around and a time of sixty seconds. During this time the bomber has traveled ten miles and has therefore a good possibility of being under cloud cover. It is on account of such considerations that the automatic fighter and eventually the guided missile will be required to intercept high performance bombers."

Cockpit Fumes

Particularly in the cold winter months when the human tendency is to keep the cockpit closed, remember there is always the possibility of carbon monoxide gas. The Mutual Aircraft Insurance Co. in its newsletter warns pilots against the possible outcome:

Carbon monoxide gas is odorless and tasteless and is present in the exhaust from all gasoline engines. If you can smell exhaust fumes, the chances are that you are inhaling carbon monoxide. Open the window, even if it is cold.

The first symptoms of carbon monoxide poisoning are shortness of breath and a tight feeling across the forehead. Dizziness follows soon, and if the pilot doesn't

realize what is happening, he may soon become unconscious. Mechanics should watch for this danger too. Never run up an engine in a closed space, even for a short time. It takes only minutes for a fatal concentration of carbon dioxide to accumulate.

Engine trouble can be the red flag. The sound of escaping gases may mean not a blown valve but an exhaust stack burned through; and if it's the latter, the gases may seep back into the cockpit. Open the hatch.

Comforts of Home

Plans for a new building for itinerant pilots at San Francisco International Airport are expected to be approved shortly by the Art Commission of that city, and it is expected that construction will get under way in March or April.

Building will be located immediately adjacent to the private aircraft parking area and will contain a lounge, lavatory facilities and a locker room.

With this addition, San Francisco Airport will become even more attractive to private pilots. Effective January 1, storage rates for planes under 10,000 pounds were reduced, and not long before this was done the rule requiring a minimum cruising speed for planes using the field was rescinded. At present, the only restriction on aircraft using the airport is that each plane be equipped with two-way radio.

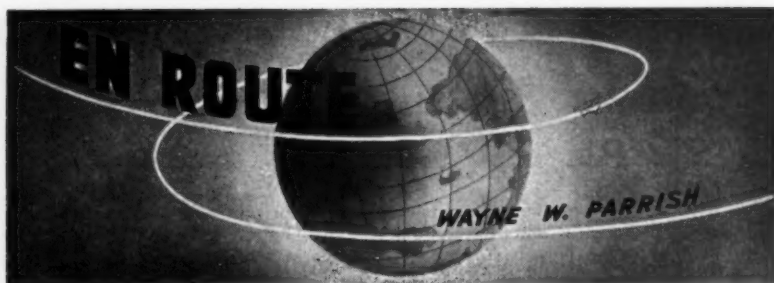
Relaxing Blood-Pressure Standard

Little is known of physical changes brought on by age and their affect on piloting skill. Recognizing the natural tendency for the blood pressure to increase with age, the Civil Aeronautics Board has proposed that physical requirements for the first-class medical for pilots be modified accordingly. The amendment to CAR Part 29 would allow the pressure readings of an applicant for the airline transport pilot rating to be slightly above the limits set for his age if an examination shows no evidence of heart disease. This will permit pilots to fly at older ages lengthening their years of productive work and also enable the country to benefit from their advanced experience.

The so-called adjusted maximum readings for blood pressure will apply to any applicant 30 years of age or older whose reclining blood pressure exceeds the maximum for his age group but whose cardiac and kidney conditions are shown to be normal.

Sky-Hook Express

Bob Broadley, helicopter pilot with East Coast Aviation Corp., recently had a unique assignment. He was hired to pilot a steeple jack, George F. Burgess of the Thomas J. Hind Co., to the top of a 150-foot smoke stack at the Monsanto Chemical Co., in Everett, Mass. Burgess carried with him, his staging hook, block and falls. Leaning out the door, he dropped his staging hook to the top of the stack, played out block and falls into the correct position. Then Bob carried his passenger back to earth where he boarded the bos'n's chair attached to the rigging and went to work. Total time, including takeoff and landing: ½ hour. Normal time: 1½ days.



Frustration. Panair do Brasil says it has it all straightened out now, but for a while everything was chaos. Seems that Panair ordered a large quantity of match booklets to give out to customers and the artist mis-spelled the name of Panair's slogan. Instead of "A Frota Bandeirante," meaning something like "The Buccaneers Fleet," the match booklets appeared with "A Erota Bandeirante," and erotic is somewhat of an international word.

Then Panair sent an order to Argentina for specially-bottled wine to serve to Panair customers on deluxe flights. As a sample of art work the airline sent along a match booklet to guide the Argentine artist. So he followed instructions to the last "t." The label on every bottle of wine carried the phrase "Close Cover Before Striking."

Snake Pit. The Bolivar Hotel in Lima is 25 or 30 years old but for all that time it has been one of the outstanding hostelrys in South America and one of the best-known hotels in the world. It fronts on the main plaza of town and the bar in the corner is a rendezvous for Americans and the town sports. But the main attraction in the Bolivar is the "snake pit," a rotund area which in a U. S. hotel would be a lobby but which in the Bolivar is used for tea every afternoon. The fashionable ladies of the town congregate there and a trio provides music.

I may be quite wrong but my impression is that the room gets its name "snake pit" because when you want a waiter in Peru you hiss for him. Or maybe the name was given because of the venomous gossip going the rounds. Maybe somebody can enlighten me on this, I meant to check it on the last trip and forgot.

Many Americans prefer the new, modern Crillon Hotel and others prefer the Country Club in the suburbs, but I like the somewhat staid European atmosphere of the Bolivar.



Ah, Those Swiss. In Switzerland most of the bartenders are women. They're very capable at mixing drinks, especially martinis. Scotch is high—usually about \$1.00 a drink. . . .

Throughout Switzerland at the best places, tea dances and night clubs, it is customary for men and women to go singly, and pick up dates for dancing or what have you. But many of the men are anything but generous. They'll go to a table of girls, ask for dances for hours at a time, but never so much as offer to buy a drink.

It's the only country in the world where a girl can go singly and be completely choosy about a date, take it or leave it, without having her reputation endangered. She's on an equal status with men in that respect. . . . Noon hour in Swiss cities is completely hazardous. Everybody cycles home for lunch and the cyclists swarm back at 2 p. m. en masse. There is nothing more risky than trying to cross a street filled with hundreds of cyclists.

Smoke Rings. Impressions you get abroad: the smoke from wood fires . . . the silence in many places from the lack of auto traffic . . . the chimes of churches . . . the sound of horses on cobblestone pavements . . . the sound of people walking—a sound almost never heard in the U. S. any more . . . the antique shops hidden away on side streets or quiet squares . . . the beauty of stained glass in ancient cathedrals . . . the wonderful



pastry shops, most of which serve hot chocolate and coffee . . . the ease with which windows in Swiss buses and trains roll down and up and why can't they be like that in the U. S.? . . . the yellow jackets that swarm over the pastry in Swiss shops and nobody cares . . . the maddening auto traffic in Paris which is like an unrehearsed ballet. Each vehicle is doing his own dance and everything clicks until all of a sudden it's chaos . . . The women who run the toilets for both sexes in Europe . . . And there is nothing so beautiful as a good fall day in Paris.

Off the Cuff. There are 160 DC-3's in Brazil, 130 with airlines, and not one was purchased new from the factory . . . Why is it that toilets never work properly in South America? . . . If

you think air fares are high, think of those Ecuadorian Indians who carry a few bolts of cloth with them on a two-hour flight to Bogota and other points, sell the cloth and return by air, and still make a profit . . . The cargo outlook would be excellent in South America if local customs down there didn't take from 30 days to six months to clear the stuff after it gets there . . . The Latins have such a liking for uniforms that every civil aviation man is always decked out in military uniform. . . . One of the richest clubs in the world (the wine cellar alone is valued at over \$1,000,000) is the Jockey Club in Buenos Aires. Dictator Perone was refused membership several years ago so he ordered a fish and vegetable market set up right outside the main entrance to the club as a reprisal.

One U. S. customs officer who deserves tremendous praise for efficiency, cooperation and common-sense is James G. McLaughlin at San Juan; he's a top-flight public servant . . . AMERICAN AVIATION's telephone in Washington is Sterling 5400, so along comes All American Airways and gets Sterling 4500. Lots of fun and confusion steering those Altoona passengers to the right number.



Old But Good. Maybe you've heard this one, because it's some years old, but an Eastern Air Lines captain was transferred to an undesirable night flight so after every trip he filled in one of those suggestion forms carried in each plane and mailed them to Capt. Eddie Rickenbacker. "I will never ride your airline again," each letter said. Rick was upset at this stream of unfavorable comments about EAL, launched an investigation. Finally found out that each letter bore the name of a stiff the line had carried. The pilot simply copied the names off the coffins on his flights . . . Then there was the irate business man in New Orleans who was furious at EAL and vowed he would never ride the line again. But he was wrong. He kicked the bucket and his body was flown by EAL to a northern city for burial.

Remember Them? Here's news about a couple of aviation old-timers who ran into in South America on recent trips.

In Santiago, Chile, I visited with Jerry Van Waggoner, for some years the Lockheed and Curtiss-Wright representative who went to Chile in 1928 for the old Curtiss company. He was the "unknown mechanic" who helped prepare Lindbergh for his trans-Atlantic hop in 1927 and began in aviation as a project engineer for Curtiss. He's an old pal of Casey

(Turn to Page 51)

AMERICAN AVIATION

NEWS SECTION

(Continued from opposite page 3)

first detachable fuselage plane, has been eliminated. XC-128's detachable pod is removed from the rear of the fuselage.

F-94C Tests: Flight tests of the F-94C have been resumed by Lockheed Aircraft Corp. following modifications, including installation of a new tail having about seven square feet more surface area. Plane is powered by Pratt & Whitney J-48 jet engine.

F-86 at Columbus: Previous reports that it will build F-86 jet fighters in its new Columbus, O., plant have been confirmed by North American Aviation. Tooling and preliminary work are expected to take several months.

3-Ton Chute Container: A 6,000-lb. capacity universal container which might be used to drop an entire infantry squad and equipment from a plane by parachute has been developed by Air Force's Air Materiel Command. Container consists of a framework of tubular sections mounted atop a metal landing skid provided with a plywood floor. Four movable aluminum triangular compartments are attached to the framework and can be arranged as a square box to carry cargo or troops. Two parachute combinations can be used—a single 100-ft. chute for loads up to 3,500 lbs. and two chutes of the same size for a 6,000-lb. load.

CIVIL AVIATION

Graham Aviation Wins: Graham Aviation Co., Butler, Pa., has been selected to operate Greenville Air Force Base, Miss., as a civilian-operated Air Force basic pilot training school. Graham won over about 60 other bidders. First class of 134 cadets will start training Mar. 5, and Graham's contract runs to Mar. 31, 1952. Bids on Columbus AFB, Miss., second civilian base, are now being studied by AF.

MILITARY

Canberra Evaluation: An English Electric Canberra jet light bomber will be brought to Wright-Patterson AFB, Dayton, O., where it will be evaluated by the Air Force both as a bomber and as a multi-purpose fighter. Meanwhile Lt. Gen. K. B. Wolfe, USAF Deputy Chief of Staff, Materiel, and an evaluation team are in England to determine whether the plane will be produced in the U. S. Presence of C. C. Pearson, president of The Glenn L. Martin Co., on the team aroused speculation that Martin might produce the plane under license. There have also been discussions on an agreement under which Britain would supply an undisclosed number of Canberras for USAF squadron use in exchange for 300-500 North American F-86 jet fighters. British Defense Minister Shinwell said negotiations are underway for an arrangement whereby the U. S. would provide Canada with raw materials for F-86 production, and Canada would supply the plane to RAF squadrons. Canadair Ltd. has the F-86 in production under license.

AF Goal: The Air Force's current strength goal is "between 95 and 100 groups," it was officially revealed for the first time by Lt. Gen. Idwal Edwards, AF Deputy Chief of Staff, Operations. He mentioned no target date for attaining that strength.

Search-Rescue Competition: Competition for a new search and rescue plane is being held by Air Force at Eglin AFB, Fla. Competitors include Fairchild C-119 Packet, modified version of Chase XC-123 transport,

and Douglas Super C-47, modernized version of wartime Skytrain.

O'Donnell Reassigned: Maj. Gen. Emmett "Rosie" O'Donnell, commander of Far East Air Force Bomber Command, has returned to his former assignment as commanding general of Strategic Air Command's 15th Air Force at March AFB, Calif. Brig. Gen. James E. Briggs has taken over FEAF.

CIVIL AERONAUTICS BOARD

Bureau Assignments: The following appointments have been made in CAB's newly-created Bureau of Air Operations: **Warner H. Hord**, who has been chief of bureau of economic regulation's accounting and rates division, as chief of accounting and statistics division; **William C. Burt**, chief of rates division in bureau of law, acting chief of rates division; **G. B. Siebos**, chief of analyses division in bureau of economic regulation, chief of routes division; **Sydney B. Smith**, chief of foreign air transport division in same bureau, chief of carrier relationships division; **Edward A. Bolster**, associate international director in same bureau, chief of foreign air division.

Actions

- **Byers Airways'** has acquired assets and Alaskan certificate of Lon Brennan Air Service in deal pending Board approval since January, 1948. Purchase price was \$30,000.
- **Arrow Airways** ordered to surrender its large irregular carrier letter of registration on Feb. 15 and to cease and desist from violations of the Act during the interim. Line was charged with operating between New York and Los Angeles in excess of limitations set down for large irregular carriers.
- **Quaker City Airways**, a large irregular carrier, granted a six months exemption to operate one flight daily from New York to Boston carrying newspapers. Flights must depart New York after 11:30 p. m. However, when carrier is unable to make connection with train departing Boston for Portland, Maine, at 2:15 a. m., line is further authorized to operate beyond Boston to Portland. Protests of American, Eastern, and Northeast were dismissed by the Board.
- **Mid-West Airlines** ordered to cease and desist from alleged violations of Section 401 of the Act which, by incorporating National Labor Board Decision No. 83, governs minimum wages paid to pilots. Mid-West had filed a proposal of adjustment with the Board and consented to the issuance of the cease and desist order.
- **Pan American World Airways'** Latin American certificate amended to eliminate Cat Cay, Bahama Islands, as an intermediate point between Miami and Nassau. PAA has not provided service to the points since early 1947.
- **Northern Consolidated Airlines** granted exemption to permit service to Poorman, Alaska, as an intermediate point between Ruby and Galena on regular route A-6.
- **Northwest Airlines'** request to suspend service at Eau Claire, Wis., until decision in Wisconsin Central Certificate Renewal Case, turned down by CAB.
- **Wien Alaska Airlines** granted exemption to transport passengers, property, and mail between Pt. Barrow and Meade River, Alaska.
- **Trans World Airlines** and **Warren Lee Pierson** interlocking relationships application approved by CAB. Chairman of the board of TWA, Pierson is also a director of Linee Aeree Italiane.

Examiner's Reports

- **Air Transport Associates'** large irregular carrier letter of registration should be revoked for alleged "knowing and willful" violations of the Act, according to recommendation of CAB Examiner Warren E. Baker. Carrier is charged with operating too frequently between Seattle and Anchorage.
- **Trans World Airlines** should be permitted to operate be-

between Santa Fe and Albuquerque, New Mexico, CAB Examiner Joseph L. Fitzmaurice recommended. Fitzmaurice urged the Board to remove a restriction in TWA's certificate which prevents the service over Route 2.

Applications and Petitions

• **Eastern Air Lines and Mid-Continent Airlines** filed application for approval of agreement calling for through one-plane service between Kansas City and Miami via St. Louis. Proposal was in line with a suggestion made by CAB in its decision in the Kansas City-Memphis-Florida Service Case last November. Both lines told CAB they would begin the operation as soon as possible after Board approval.

• **Pan American World Airways** applied for temporary or permanent amendment of its trans-Pacific certificate to include American Samoa as an intermediate point between Canton Is., and the British Crown Colony of Fiji. Department of Interior, which is responsible for the administration of American Samoa, has indicated a desire for American-flag service to the mainland and, PAA told CAB, it will be able to offer such service with a minimum amount of additional expenditure.

AIRLINES

EAL-NEA Lease: Eastern Air Lines may lease Convair aircraft from Northeast Airlines for New York-Washington service under an agreement approved by CAB. The Board exempted the carriers from provisions of the Civil Aeronautics Act relating to acquisitions in order to prevent "inevitable" delays. Planes will maintain NEA's insignia but EAL will post notice in the interior that the aircraft is operated by it under charter. NEA will be paid \$200 per hour. Purpose of the deal is to permit one line enjoying the peak season over its routes to utilize planes of another carrier faced with the off-season.

Transports in Airlift: Breakdown of the present 66 scheduled and non-scheduled DC-4's in the Pacific airlift is as follows: Pan American World Airways, 8; American Airlines, 6; Pan American-Grace, 1; Western Air Lines, 1; Capital, 2; Northwest, 4; TWA, 5; United, 7; Seaboard & Western, 7; Flying Tiger Line, 7; Transocean, 7; Overseas National, 5; California Eastern, 3; Alaska, 3. No longer represented are Eastern, National, Delta, Braniff and American Overseas. Increases in number of planes, as compared with several months ago, are Northwest, up 1; TWA, 1; United, 1; S&W, 3; Tigers, 1 and Cal Eastern, 2.

Resort-Nationwide Merger: Resort Airlines, certificated tour operator, and Nationwide Air Transport Service, large irregular carrier, have been granted an exemption by CAB from provisions of the Civil Aeronautics Act which would otherwise have required CAB approval of their proposed merger. CAB granted the exemption subject to surrender by Nationwide of its letter of registration as a large irregular.

People: John V. Weesner, executive vice president of Lake Central Airlines, has also been elected treasurer of the airline, replacing R. E. Ross, resigned. R. W. Clifford and W. W. Weesner were elected to the board of directors.

CONGRESS

Bills Introduced: The following bills have been introduced in Congress:

S. 475: Providing for local enforcement of civil aviation safety regulations, by Sen. Owen Brewster (R., Me.).

S. 476: Providing for encouragement in the development of a safe U. S. flag international air transport system properly adapted to present and future needs of U. S. foreign commerce, postal service and national defense, and to meet certain U. S. obligations by virtue of its membership in International Civil Aviation Organization, by Brewster.

S. 477: Providing for development of civil transport aircraft adaptable for auxiliary military service, by Brewster.

S. 478: Authorizing Maritime Commission to provide for development of lighter-than-air rigid airships for commercial use, by Brewster.

S. 479: Providing for coordination of aviation policy, by Brewster.

S. 480: Amending Civil Aeronautics Act to provide for regulation of interstate contract carriers by air, by Brewster.

S. 481: Providing for transport aircraft adaptable for both commercial and military service, by Brewster.

S. 434: Authorizing training of adequate backlog of airmen to meet civil and military needs, by Sen. Edwin C. Johnson (D., Colo.).

S. 435: Amending Civil Aeronautics Act to provide war risk insurance for aircraft, by Johnson.

S. 390: Providing that a private pilot may operate his own aircraft for crop dusting purposes, by Sen. William Langer (R., N. D.).

H. R. 1179: Authorizing construction of aeronautical research facilities by National Advisory Committee for Aeronautics, by Rep. Carl T. Durham (D., N. C.).

H. R. 1270: Providing for renegotiation of contracts, by Rep. R. L. Doughton (D., N. C.).

H. R. 1285: Amending Civil Aeronautics Act to provide economic regulation of air carriers engaged in foreign air transportation, by Rep. John Kennedy (R., Mass.).

H. R. 1521: For training of civil aircraft pilots, technicians and mechanics, by Rep. Lindley Beckworth (D., Tex.).

LABOR

AA-ALPA Dispute: President Truman has appointed a three-man emergency board to investigate a labor dispute between American Airlines and its employees represented by Air Line Pilots Association. Members are David L. Cole, labor consultant, Paterson, N. J., chairman; Frank P. Douglass, Oklahoma City, former National Mediation Board member; Aaron Harvitz, New York attorney. Board was created to avert a strike of AA pilots following an impasse in negotiations involving a new wage contract. Status quo remains in effect for the 30 days the board sits and for 30 days after it announces its findings and recommendations.

NWA Increase: Amended agreement signed by Air Line Stewards and Stewardesses Association and Northwest Airlines gives members a pay raise of about 6%. Provisions include raises of not less than \$15 a month for 260 cabin attendants; additional \$10 per month for employees flying the Stratocruiser and for those flying south of Tokyo; time and one-half pay for international employees after 255 hours of flying per quarter; \$100 in retroactive pay for all employees of one year's employment or more; flight time credit for pursers and stewardesses on international operations for all time after one hour spent with passengers on the ground.

FINANCIAL

Manufacturing

Standard-Thomson Corp. reported \$964,972 net before taxes on \$4,995,999 sales for six months ended Nov. 30, 1950, against \$450,057 profit on \$3,370,987 sales for same 1949 period.

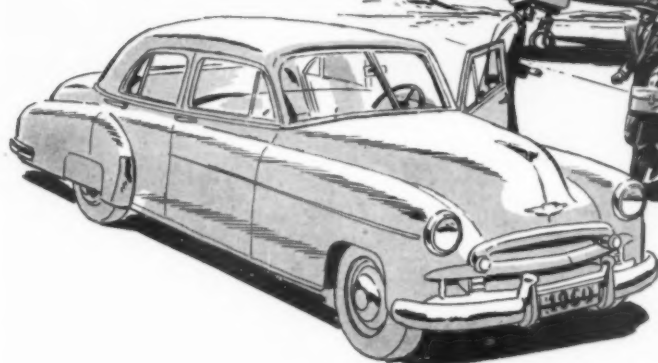
Dividends

American Airlines has voted the regular quarterly dividend of .875c per share on its \$3.50 cumulative convertible preferred stock, payable Mar. 1 to stockholders of record Feb. 15.

AROUND THE WORLD

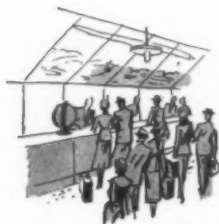
Brabazon Abandoned: Although British Ministry of Supply will continue its project which calls for two Bristol Brabazons, it considers the type commercially impractical. Second prototype, with four pairs of Proteus turbines, will be completed, and total cost of the project will probably be over \$50,000,000. First prototype, with four pairs of Centaurus piston engines, has flown almost 200 hours and is reported to have been suffering from engine mounting vibration.

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American Aviation



THE AIR INDUSTRY'S FIRST NEWS MAGAZINE

NEWS ISSUE

Entered as Second Class Matter

January 29, 1951

Vol. 14 No. 28

a LOOK at the WEEK

Manufacturers are applauding National Production Authority's action in providing DO defense rated orders for maintenance, repair and operating supplies. Situation was becoming serious. Action is still needed on structural steel, which still has no DO coverage.

Fact that producers of such items as alloy steels and aluminum sheet don't have to tie up more than 25% of their business with DO-rated orders hampers aircraft industry considerably. It's often possible for civilian customer to get quicker delivery than a defense contractor.

Unlike government's reserve aircraft plant situation, which is proving useful in current expansion program, little hope is held out for most of the reserve engine plants. Majority of satellite plants used during last war have been sold, divided or modified beyond reasonable use.

Note on cost of doing business: aircraft engine manufacturer recently replaced a special tool purchased in late 1943 at cost of \$57,000. Price of new tool: \$137,000.

Airlines seem generally satisfied over what will be expected of them in event of war. Military's position is that strong domestic system must be maintained. This time there's at least been some preliminary planning—there wasn't any before World War II.

One troublesome spot in airlines' mobilization set-up: military's policy on reserve call-ups had better be clarified, industry officials say. There's no unified policy now, and carriers have lost enough men to make situation disturbing.

National Security Resources Board task groups on civil aviation mobilization plan are rushing work on final report. Most progress has been shown by airport group.

Value of airline planes on order for next two years: for 1951 delivery, 113 planes costing \$95,770,000; for 1952 delivery, 84 costing \$78,80,000.

Airline business has held up remarkably in January—even ahead of December in some places. Profits are expected by a number of lines.

Cargo, Feeder Prototypes Get Priority

The government committee administering the prototype aircraft testing law has decided to place primary emphasis on the evaluation of cargo and local service type aircraft, with second priority going to large passenger transports.

The group, called the Prototype Aircraft Advisory Committee, and headed by CAA Administrator Donald W. Nyrop, also made the following policy decisions at its first meeting:

Jet Planes: Present jet aircraft types should be placed in simulated airline operation under contract with commercial carriers subject to availability of such planes from the military. Some CAA officials were of the opinion that it will be possible to get some jets from the Air Force.

Cargo Planes: The cargo aircraft sizes to be studied should be (1) 20,000 to 30,000 lbs. payload, and (2) 50,000 lbs. payload.

Priorities: There should be established as soon as possible a system of priorities for materials and manpower required in carrying out the prototype testing program.

To help in carrying out its work of developing broad specifications and aircraft testing programs, the committee established a technical subcommittee headed by Harold Hoekstra, chief engineer of CAA's aircraft division. The subcommittee will take up immediately the matter of specifications for a local service transport. The full committee will meet again in early March.

Joseph Adams Named to CAB

Joseph P. Adams, a Seattle, Wash., attorney and former head of the Washington state aeronautics commission, was nominated Jan. 23 by President Truman to be a member of the Civil Aeronautics Board. He will succeed Russell B. Adams, whose appointment was permitted to expire Dec. 31 and who is now an assistant to the Secretary of State, specializing on international aviation matters.

Airline's War Plan

The broad outline of a plan for using a substantial part of the scheduled and non-scheduled four-engined transport planes as a reserve to augment the military air transport fleet in time of war has been drafted by a National Security Resources Board committee.

Many details remain to be worked out, but the general concept of the plan has been approved by the Air Force. Although the final blueprint isn't ready yet, industry observers point to the possibility that:

A substantial number of four-engined transports would be taken in event of war. Those remaining might be re-shuffled among carriers. Much more emphasis on twin-engined equipment. In general, domestic service will be kept as strong as possible.

High-density seating in practically all equipment would be the order of the day.

All promotional fares would be dropped immediately.

Modification of some four-engined planes, so they'll be quickly available for military duty, may start soon, even in absence of war. Military will pay for modifications.

The NSRB plan, called the "Douglas Report," will now be turned over to the various NSRB task groups working on civil aviation mobilization plans for com-

CIRCULATION COPY 3

pletion of details. It was worked out by a committee headed by James H. Douglas, Jr., Chicago attorney, and World War II chief of staff of Air Transport Command.

General policies in the Douglas report were discussed Jan. 18 at a meeting of Air Force, CAB and airline officials. Points discussed included:

Modifications: Plan for minimum modifications required to adapt selected civil planes for military requirements. As stated above, certain four-engined planes will be maintained in "standby" military condition. Modifications will include provision for long-range fuel tanks, astradomes, radio, etc. Airlines will probably do necessary work on a cost-plus basis.

Expansion: Various ways and means by which civil air industry can be expanded within sound economic limits in order to increase its potential. (Details are to be worked out by NSRB war air service pattern task group).

Priority Regulations: Establishment of certain priority regulations providing civil air fleet with adequate personnel and equipment to fulfill its civil and military wartime tasks. (Priorities on planes and spares are already worked out; much remains to be done to insure adequate personnel).

Standby Arrangements: General discussions of standby arrangements for efficient and smooth displacement from air commerce of some of the civil airlift capacity for wartime requirements. (Details are to be worked out by an NSRB task group).

At the meeting, John A. McCone, Under Secretary of the Air Force, reiterated the AF's position that it is, "now more than ever, vitally interested in the growth and strength of the nation's total civil air fleet capacity. The United States has become increasingly dependent on air commerce and that part of the civil air fleet must continue to support the national economy during war."

MANUFACTURERS

100,000-Plane Base: Asserting that the present goal of having capacity to produce 50,000 planes a year should be reached sometime within two years, **Charles E. Wilson**, chief of the Office of Defense Mobilization, said that after that the U. S. should begin working toward a 100,000 planes a year goal. He also stated that his goal is to raise U. S. production to a point where all needs for defense preparation can be met and the nation would have enough war materials on hand to fight a one-year all-out war. From that point, he added, "we should be able to fight a war off the production lines."

Lockheed-Kaiser Contract: Lockheed Aircraft Corp. has signed a contract with Kaiser-Frazer Corp. for fabrication and assembly of fuselage waist sections and center section flaps for the P2V Navy anti-submarine

patrol plane at the K-F aircraft division plant, Oakland, Calif. Dollar value was not disclosed. **William A. Cannon**, general manager of the K-F division, said production work is scheduled to start in 60 days.

F-89 Order: Northrop Aircraft has received an order for an additional number of twin-jet afterburner-equipped F-89 all-weather interceptors, increasing company's backlog to \$180,000,000. First F-89 production versions are scheduled for accelerated service test at Edwards Air Force Base, Muroc.

Bechtel-McCone Plant: Negotiations are underway between Air Force and city of Birmingham, Ala., for agreement under which AF will take over former Bechtel-McCone plant used as B-24 modification center in World War II. AF will use plant as a mod center, but neither plane to be modified nor contractor who will handle it has been decided. Chase Aircraft Co. had leased five production bays in the plant from the city for production of C-123 assault transport, but AF's recapture right permits overruling these plans. AF said it had not awarded a contract to Chase for C-123 production and would not comment whether Chase might handle the modification program.

Decision on Lustron: Reconstruction Finance Corp. has asked Charles E. Wilson, Defense Mobilization chief, whether he wants the defunct Lustron Corp. plant at Columbus used for plane assembly or prefabricated housing manufacture. Munitions Board is reported to feel that it could best be used for Navy plane assembly.

NARCO Building: New building with 9,000 sq. ft. of floor space has been purchased by National Aeronautical Corp., Ambler, Pa., for expansion of production facilities. Building will be in use by May 15.

People: **Carl G. Holschuh**, who has been vice president-manufacturing of Sperry Gyroscope Co., has been named vice president and assistant general manager for manufacture. **Edward U. Da Parma**, works manager, was named vice president and works manager . . . **E. M. Toussaint**, who has been doing management organization consultant work for Minneapolis-Honeywell Regulator Co., has been named to head the Micro Switch Division's production of the Lear F-5 autopilot, being manufactured under license agreement with Lear Inc. . . . **Joseph Andreini**, former production manager of Republic Aviation Corp., has been appointed factory manager . . . **Ken Ellington**, public relations director of Republic, has been promoted to assistant to the president. He will continue to supervise public relations activities. **Leon Shloss**, aviation writer with International News Service, is joining Republic's public relations staff . . . Pacific Airmotive Corp. has announced following appointments: **Neal J. Coleman**, formerly with Curtiss-Wright Flying Service, Continental Air Lines, and TWA, as manager of Pacific Airmotive Airport Division at Chino, Calif.; **William Laughlin**, former general sales manager of Menasco Manufacturing Co., as acting sales manager; **Ford Palmer**, assistant to the president, as military coordinator in charge of contract administration, negotiations, military coordination and plant security for the three divisions at Chino, Burbank, and Linden, N. J.

American Aviation

News Issue



Vol. 14 No. 28

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ERIC BRAMLEY, Executive Editor

American Aviation is published every Monday by American Aviation Publications, Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Canada, Mexico, Central and South American countries—\$5.00 for 1 year; \$8.00 for 2 years; \$10.00 for 3 years. All other countries—\$7.00 for 1 year; \$12.00 for 2 years. Entered as Second-Class matter in Washington, D. C., and Harrisburg, Pa.

Editorial and business offices: 1025 Vermont Avenue, N. W., Washington 5, D. C. Telephone—STerling 5400.

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PLANES & EQUIPMENT

T-40 Production Order: A \$23,000,000 Navy contract for T-40 turbo-prop engines, first production order for a U. S. turbo-prop, has been received by Allison Division of General Motors Corp. Company will need 10,000 more workers by year-end to handle this and other engine contracts.

Aerocar Demonstration: Aerocar Inc., Longview, Wash., is modifying its prototype Aerocar with a 125-hp Lycoming engine to replace former 100-hp Franklin, and

will conduct flight demonstrations on the east coast in March. Company states that it has commitments from CAA to rent a number of the convertible "flying automobiles" but difficulties in obtaining materials and adequate financial backing are delaying production.

Thrust Augmentation: A system for producing the added thrust provided by afterburning without using a conventional type of afterburner has been developed by Air Materiel Command engineers, who will test it on a General Electric J-47 engine. Fuel is injected in front of the turbine instead of behind it, thus eliminating the need for flame holders, and ignition source and various plumbing fixtures required in an ordinary afterburner. Because of a natural ignition delay, combustion takes place a few inches aft of the turbine wheel. Method also eliminates weight of an afterburner and does not interfere with the power or efficiency of the jet engine.

Jetliner Flight: Avro Jetliner on Jan. 22 flew non-stop from Toronto, Canada, to Tampa, Fla., 1,110 miles, in two hours 56 minutes. Flight was made at 425 mph true air speed at 35,000 ft. Plane was to fly to Miami for a few days of warm weather testing before returning to Toronto.

P&W Line: An overhaul production line for Pratt & Whitney R-2800 CB-16 engines has been set up by Airwork Corp., Millville, N. J. First engine on the line will be completed in a few weeks. Airwork has been handling overhaul of smaller P&W engines for several years.

AIRLINES

May End REA Contract: Air express agreement between scheduled airlines and Railway Express Agency, which has been in force about 20 years, may be ended unless the parties can get together soon on terms of a new contract. CAB has been trying to break the stalemate. Airlines state that REA insists upon a cost-plus arrangement which would guarantee it a profit. Airlines believe that REA should assume normal business risks in any new agreement. None of the airline proposals is acceptable to REA and the agency may decide that it has no alternative but to "serve the six months' notice of termination of the present contract," said A. L. Hammell, REA president. Discussions were continuing last week.

EAL-NEA Interchange?: The way has been opened indirectly by the Civil Aeronautics Board for through service interchange operations between points on Eastern Air Lines' Washington-New York route and points on Northeast Airlines' New York-Boston route. In an amendment to its recent approval of an agreement under which EAL can lease Convair-Liners from NEA for New York-Washington, CAB set 90-day limit on the agreement, but provided automatic extension if the lines file an interchange proposal within that time. CAB said its action shouldn't be taken as a commitment but as "an expression of our present intent." It also reduced required layover time for planes at New York under the lease agreement from one hour to 30 minutes.

DO Ratings: Defense Order ratings for first quarter of 1951 have been issued to all U. S. certificated airlines which submitted their requirements for aircraft equipment and spares to CAA, according to National Production Authority.

DC-6B to UAL: United Air Lines will take delivery in early February on first of 20 Douglas DC-6B's. It will be first DC-6B delivered to any airline. UAL will receive seven more this year, balance in 1952.

TOAL Buys DC-4's: Two additional DC-4's have been purchased by Transocean Air Lines from Pak-Air

of Pakistan, and have been added to TOAL's charter fleet in the Pacific airlift.

People: William Van Dusen, former public relations director of Pan American World Airways, has been elected a vice president of Eastern Air Lines. He will serve as special assistant to E. V. Rickenbacker, president and general manager, and will direct the coordination of public relations, news bureau and advertising. Present status of department heads now in charge of those activities is not affected . . . P. K. Macker, former assistant public relations director-domestic of TWA, has been named director of international public relations for Philippine Air Lines, with headquarters in San Francisco . . .



CIVIL AERONAUTICS BOARD

Applications and Petitions

• **Capital Airlines** applied for amendment of its certificate for Route 14 to permit service to Chicago, Milwaukee, and Twin Cities on all-cargo flights operating to and from points east of Chicago. A self-requested restriction would prohibit the carriage of local cargo between the three points. Recently, Capital was turned down on an exemption application to provide the same service.

• **KLM Royal Dutch Airlines** applied for authority to serve Boston as an intermediate point on its trans-Atlantic route and for extension of the route from New York to Willemstad, Curacao, N. W. I. KLM is presently authorized to operate between Amsterdam, intermediate points in the United Kingdom, Eire, Newfoundland, and the Azores, and the terminal point New York. Under new proposal, Boston would be added as an intermediate, New York would be changed from a terminal to an intermediate and Willemstad added as the new western terminal. New York-Willemstad segment sought would add 2,001 route miles.

• **Portland, Oregon, Chamber of Commerce and Freight Traffic Association, Los Angeles Chamber of Commerce, and San Francisco Chamber of Commerce** filed motions requesting dismissal of West Coast Common Fares Investigation. Set for hearing Feb. 7, investigation was launched by Board to effect possible substitution of mileage-based fares for long-standing common fares to major west coast cities.

• **Youngstown Airways, Inc.**, has filed an amended route application requesting authority to carry persons, property, and mail between Youngstown and Columbus, Ohio, and to and from other points in the general area which the "Board may deem proper." Carrier currently operates as a small irregular carrier.

Actions

• **U. S. Aircoach** turned down on application for individual exemption to continue operations as large irregular carrier. Formerly known as Scott Aero Services, Long Beach, Calif., line operated in the past with other non-scheduled airlines under a blanket exemption. In denying application, CAB concluded that carrier operated unauthorized "route-type services" between Burbank, Oakland, and Honolulu during 1950.

• **All American Airways** granted continued authorization to suspend service at Warren, Pa. on segment 4 of Route No. 97, until adequate airport facilities are available.

• **Mid-West Airlines' and Ozark Airlines'** applications for routes paralleling local service routes awarded Mid-Continent Airlines in the Parks Investigation Case have been consolidated with the North Central Route Investigation. Latter proceeding was instituted by Board to determine whether all or part of MCA's local service Route No. 106 should be transferred to a local service line. Previously, Board consolidated Wisconsin Central Airlines' application for the routes with the North Central Case. In separate order, scope of case was enlarged to include possible addition of Mason City, Iowa, as a permanent point on Route 106, if route is re-awarded to a local service line.

CAB Calendar

Feb. 5—Hearing in Caribbean Atlantic Airlines, Inc. Mail Rate Case. Washington, D. C. (Docket 2210).

Feb. 7—Hearing in West Coast Common Passenger Fares Case. Washington, D. C. (Docket 4586).

MILITARY

Reserves Called: Air Force is calling all its remaining reserve wings and most Air National Guard wings to active duty between Mar. 1 and May 15. Involving 150,000 men, call-up involves 12 ANG wings, 21 reserve wings, "major portion" of individual active reservists and an "undetermined number" of unassigned volunteer reserves. Ordered to active duty between Apr. 1 and May 15 will be six reserve troop carrier wings with Tactical Air Command; the other 11 TC wings and four light bomber wings will be called between Mar. 1 and May 1.

AMC Contracts: Air Materiel Command has awarded the following contracts in excess of \$100,000: **Royal Electric Inc.**, Jamestown, O., \$435,632, inverters; **D. C. Cooper Co.**, Chicago, \$406,000, indicators; **Eclipse-Pioneer Division, Bendix Aviation Corp.**, Teeterboro, N. J., \$433,109, indicators and transmitters; **Mine Safety Appliances Co.**, Pittsburgh, Pa., \$354,432, fire fighters' protective hoods.

AF Contracts: Air Force has awarded the following contracts in excess of \$1,000,000: **Lockheed Aircraft Service Inc.**, Burbank, Calif., \$3,060,000, reconditioning of aircraft; **Pacific Airmotive Corp.**, Burbank, Calif., \$3,060,000, reconditioning of aircraft; **Beech Aircraft Corp.**, Wichita, Kans., \$4,760,000, fire bombs; **Douglas Aircraft Co.**, Santa Monica, Calif., \$3,840,000, airplanes; **Bendix Radio Div., Bendix Aviation Corp.**, Baltimore, Md., \$1,559,237, receiver transmitters; **Minneapolis-Honeywell Regulator Co.**, Minneapolis, Minn., \$2,000,000, automatic pilot components; **Philco Corp.**, Philadelphia, Pa., \$1,500,000, microwave systems; **Link Aviation Inc.**, Binghamton, N. Y., \$2,000,000, trainers, stimulators; **Sperry Gyroscope Co.**, Great Neck, L. I., N. Y., \$6,105,000, flight computer system; **Jack & Heintz Precision Industries Inc.**, Cleveland, O., \$1,163,808, generators; **Allison Division of General Motors Corp.**, Indianapolis, Ind., \$5,150,000, jet engine spare parts.

CIVIL AVIATION

CAA Priorities Office: CAA has created an Office of Aviation Defense Requirements to administer priorities and allocations for civil aviation. It is headed by **G. R. Gaillard**, who has been CAA standardization coordinator since the last war. Office's immediate responsibility will be to handle DO defense rated orders for new airline planes and parts.

Land Acquisition Law: CAA officials emphasize that recently-passed law making possible an increase in the federal share of airport land acquisition costs from previous limit of 25% to 50% is not retroactive. However, in cases where CAA has not yet made payment of its share of land acquisition costs, it may be possible for the federal grant to be increased, subject to fund availability. New law's principal effect will probably be to facilitate purchase of more land for runway extensions at key civil airports.

VHF Interference: Arcing at the spark plugs is the chief cause of interference with very high frequency communications and navigation equipment in light aircraft, according to a new CAA study, which adds that use of shielded ignition systems is the most effective way of minimizing the problem. Also effective is use of resistor type spark plugs, the study said. Results of the project, carried out for CAA by Electronics Research Inc., Evansville, Ind., are contained in an 81-page report entitled "The Development of Techniques for the Utilization of VHF Radio in Light Aircraft."

CAA Alaskan Jobs: CAA has openings for 70 aircraft communicators and 30 maintenance technicians in Alaska at salaries beginning at \$3,875, including 25% differential for foreign pay. Applications should be

filed on Form 57 with CAA's Aeronautical Training Center, Oklahoma City.

State Developments: Recent actions affecting state aeronautics commissions:

Abolition of Indiana State Aeronautics Commission proposed in state legislature by Rep. Charles T. Miser, Republican. He criticized the commission, with its proposed \$98,000 budget, as involving "too much duplication."

Wyoming State Aeronautics Commission recommended by Gov. F. A. Barrett for an \$84,860 for next two fiscal years, starting Apr. 1. Commission had asked \$104,860. Appropriation for last two years was \$136,017. Breakdown of Governor's recommendation: \$46,860 for administrative expenses, \$30,000 for airport improvement, \$8,000 for air rescue.

Separate state commission would be created in Utah under terms of bill introduced in State Senate. There would be five non-salaried members and a salaried director.

IN GENERAL

Steel for Defense: National Production Authority has ordered producers of several types of steel to accept defense orders covering up to 35% of their normal capacity. It was also announced that a strict allocation system for tungsten has been placed in effect.

LABOR

Pioneer Raise: Pioneer Air Lines has approved cost-of-living raises in addition to wage increases granted this month to station, maintenance, office, traffic and reservations personnel. Using Bureau of Labor Statistics index of 177, quarterly computations will be taken beginning in April, and averages of the first three of the preceding four months will be used as the basis for cost-of-living increases for the succeeding three months. If BLS index exceeds the base figure, increases of 2c per hr. for hourly employees and \$3.50 per mo. for salaried employees will automatically become effective for the ensuing three months.

CL Allowances: Cost of living allowances totaling \$200,000 will be received by North American Aviation employees for the next three months in paychecks beginning Jan. 29. Company has 20,000 workers in Los Angeles, Downey, Torrance and Long Beach plants and monthly payroll of \$7,000,000. New Columbus plant is not affected by the current pay increase, but later it is expected to be operated under working conditions similar to the west coast plants.

OFF THE PRESS

Jet Aircraft Power Systems, Principles and Maintenance, by Jack V. Casamassa. McGraw-Hill Book Co. Inc., 330 W. 42nd St., New York 18, N. Y. 338 pages. \$5.50.

Aerodynamics of Supersonic Flight, by Alan Pope. Pitman Publishing Corp., New York. 184 pages.

Aircraft Engines of the World, 1950 edition, by Paul Wilkinson. Published by Paul Wilkinson, 225 Varick St., New York 14, N. Y. 324 pages. \$10.

COMING UP

Jan. 29-Feb. 1—Institute of the Aeronautical Sciences 19th annual meeting, Hotel Astor, New York, N. Y.

Feb. 14-16—National Aviation Education Council meeting, Atlantic City, N. J.

Feb. 14-28—Orlando Annual Aviation Fiesta, Municipal Airport, Orlando, Fla.

Feb. 23—Air Transport Command Officer-Stag Reunion, Waldorf Astoria Hotel, New York, N. Y.

International

Feb. 5-6—IATA Medical Committee meeting, Cairo, Egypt.

Feb. 13—ICAO Airworthiness Division meeting, Montreal.